

# PROJECT MANUAL

FOR

WATER SYSTEM IMPROVEMENTS  
(RELOCATION OF WATERLINES AND  
REHABILITATION OF GROUND STORAGE TANK)  
MGA PROJECT W#302

FOR THE

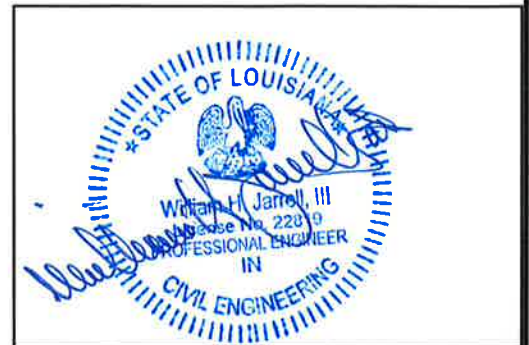
CITY OF OPELOUSAS  
P.O. BOX 1879  
OPELOUSAS, LA 70571-1879

PREPARED BY:

MORGAN GOUDEAU & ASSOCIATES, INC.  
CONSULTING ENGINEERS & LAND SURVEYORS  
1703 WEST LANDRY STREET  
OPELOUSAS, LA 70570

LDH TRACKING NO. 60002429

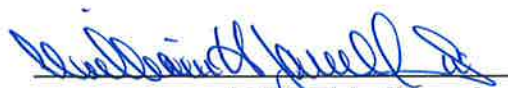
JUNE, 2021



**WATER SYSTEM IMPROVEMENTS  
(RELOCATION OF WATERLINES AND  
REHABILITATION OF GROUND  
STORAGE TANK)  
MGA PROJECT W#302**

**CITY OF OPELOUSAS  
P.O. BOX 1879  
OPELOUSAS, LA 70571-1879**

**I hereby certify that this Project Manual was  
prepared by me or under my direct supervision,  
and that I am a duly registered Engineer under the  
laws of the State of Louisiana.**

  
**WILLIAM H. JARRELL, III, P.E.  
LICENSE NO. 22819  
JUNE 30, 2021**



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## **CONTRACT DOCUMENTS**

## **ADVERTISEMENT FOR BIDS**

Sealed bids will be received by the City of Opelousas, up to the hour of 2:00 o'clock p.m. CDST 105 N. Main Street, Opelousas, Louisiana, 70570 on

**TUESDAY, NOVEMBER 1, 2022**

and then publicly opened and read, for water system improvements, relocating existing waterlines at various railroad and stream crossings and rehabilitation of an existing ground storage tank, including all necessary labor, materials, equipment, tools, etc., required as set forth in the Bid Documents of Morgan Goudeau & Associates, Inc. for Water System Improvements, Relocation of Waterlines and Rehabilitation of Ground Storage Tank for the City of Opelousas. Bid Documents are available and may be seen and examined at the Clerk's Office, Opelousas, Louisiana, or at the office of Morgan Goudeau & Associates, Inc., Consulting Engineers, Opelousas, Louisiana. Bid related materials can also be examined or obtained at <https://lamats.eauctionservices.com/>. Copies of Bid Documents may be obtained from the office of Morgan Goudeau & Associates, Inc., 1703 West Landry Street, Opelousas, Louisiana, upon deposit of \$100.00 dollars for each set of documents. Deposits on the first set of documents furnished to bona fide PRIME BIDDERS, fully licensed by the Louisiana State Licensing Board of Contractors, will be fully refunded upon the return of the documents in good condition, no later than ten (10) days after receipt of bids. On other sets of documents furnished to said prime bidders, the payment of \$100.00 dollars shall constitute the cost of reproduction and handling and WILL NOT BE REFUNDED. Bids may also be submitted electronically through LaMATS e-Auction Services (EASiBUY) <https://lamats.eauctionservices.com/>. All potential bidders may register at the website address at no charge to access the full specifications and to receive email notification of changes to the solicitation. A \$300.00 Electronic Platform Fee will be payable upon award by the awarded vendor whether having submitted a bid by sealed envelope or electronically.

Bids shall be enclosed in a sealed envelope addressed to Julius Alsandor, Mayor, Opelousas, Louisiana , Louisiana and plainly marked on the outside, "Bid for Water System Improvements - Relocation of Waterlines and Rehabilitation of Ground Storage Tank, MGA Project W#302". Bids must be accompanied by a certified check or bid bond in the amount equal to 5% of the bid, made payable to the City of Opelousas, Louisiana, as a guarantee that the bidder will furnish all necessary bonds and enter into a contract if his bid is accepted. Sureties used for obtaining bonds must appear as acceptable on the U.S. Department of Treasury Circular 570 and be licensed to do business in the State of Louisiana.

No bidder may withdraw his/her bid within forty-five (45) days after the actual date of the opening thereof, unless withdrawal of bid is in accordance with LA. R.S. 38:2214C.

The Owner hereby notifies all bidders that in regard to any contract entered into pursuant to this Advertisement, that Minority Business Enterprises will be afforded equal opportunity to submit offers in response to this invitation and will not be discriminated against on the ground of race, color, sex, national origin or disability in consideration for an award.

Bidders must certify they do not, and will not, maintain or provide for their employees any facilities that are segregated on a basis of race, color, creed or national origin.

The City of Opelousas reserves the right to reject any and all bids for just cause, in accordance with Public Bid Law.

Thus done and signed at Opelousas, Louisiana, this 21<sup>st</sup> day of September, 2022.

JULIUS ALSANDOR  
MAYOR

Attest: LEISA ANDERSON  
CITY CLERK

**ADVERTISE: OCTOBER 5, 12, 19, 2022 (3 TIMES)**

## **INSTRUCTIONS TO BIDDERS**

### **ARTICLE 1 - DEFINED TERMS**

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. Bidder - The individual or entity who submits a Bid directly to Owner.
  - B. Issuing Office - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
  - C. Successful Bidder - The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

### **ARTICLE 2 - COPIES OF BIDDING DOCUMENTS**

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office upon deposit of \$100.00 for each set of documents. Deposits on the first set of documents furnished to bona fide PRIME BIDDERS, fully licensed by the Louisiana State Licensing Board of Contractors, will be fully refunded upon the return of the documents in good condition, no later than ten (10) days after opening of Bids.

The issuing office for this project, as defined in Paragraph 1.01.B., is:  
Morgan Goudeau & Associates, Inc.  
Consulting Engineers and Land Surveyors  
1703 West Landry Street  
Opelousas, Louisiana 70570  
Phone: 337-948-4222  
Fax: 337-942-2108

- 2.02 Complete sets of Bidding Documents must 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 confer a license or grant for any other use.

### **ARTICLE 3 - QUALIFICATIONS OF BIDDERS**

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within ten (10) days of Owner's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
- A. Attestation Form (Past Criminal Convictions of Bidder)
  - B. Affidavit Form (Verification of Employees)
  - C. Affidavit Form (Certification Regarding Unpaid Worker's Compensation Insurance)
  - D. Non-Collusion Affidavit

## INSTRUCTIONS TO BIDDERS

### **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 of explorations and tests of subsurface conditions at or contiguous to the site that Engineer has used in preparing the Bidding Documents.
2. Those Drawings of Physical Conditions in or relating to existing surface and subsurface structures at or contiguous to the site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

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 SC-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 those reports and drawings relating to a Hazardous Environmental Condition identified at the site, if any, that Engineer has used in preparing the Bidding Documents.

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 SC-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.

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 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 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.



## INSTRUCTIONS TO BIDDERS

- 4.06 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 for which a Bid is to be submitted. 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.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. Examine and carefully study the Bidding Documents, including any Addenda 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, or performance of the work.
  - D. Carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the site which have been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.
  - E. Obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site which may affect cost, progress, or performance of the work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
  - 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 bid and within the times 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. Correlate the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
  - I. 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.
  - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the work.

## **INSTRUCTIONS TO BIDDERS**

- 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 NOT be held.

### **ARTICLE 6 - SITE AND OTHER AREAS**

- 6.01 The site is identified 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. 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.

### **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 ten (10) 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.

### **ARTICLE 8 - BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of FIVE (5%) PERCENT of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on the 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 fifteen (15) days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of the Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven (7) days after the Effective Date of the Agreement or forty-five (45) days after the Bid opening, 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 (7) days after the Bid opening.

## **INSTRUCTIONS TO BIDDERS**

### **ARTICLE 9 - CONTRACT TIMES**

- 9.01 The times for Substantial Completion is 125 calendar days and readiness for final payment is 170 calendar days and will be entered into the Agreement . It will be necessary for the apparent Successful Bidder to satisfy Owner that it will be able to achieve Substantial Completion and be ready for final payment within the times designated.

### **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 name of a certain brand, make, manufacturer, or definite specifications is to denote the quality of standard of the article desired, but does not restrict bidders to the specific brand, make, manufacturer, or specification named. It is to set forth and convey to prospective bidders the general style, type, character, and quality of the article desired. When in specifications or contract documents a particular brand, make of material, device, or equipment is shown or specified, such brand, make of material, device or equipment shall be regarded merely as a standard. When in specifications or contract documents engineer specifies a particular brand, make of material, device, or equipment, or equal thereto, he shall adequately identify said produce by including, minimally, the model or catalog number of the product. If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven (7) working days prior to the opening of bids. Within three (3) days, exclusive of holidays and weekends, after such submission, the Engineer shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted.

### **ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder shall 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. Said list shall not be required to be submitted any sooner than ten (10) days after opening of bids.

### **ARTICLE 13 - PREPARATION OF BID**

- 13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from ENGINEER.
- 13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each UNIT PRICE ITEM listed therein.
- 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 below the signature.
- 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 below the signature.

## **INSTRUCTIONS TO BIDDERS**

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

### **ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS**

- 14.01 Unit Price
  - A. Bidders shall submit a Bid on a unit price basis for each item of work listed in the Bid schedule.
  - B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. 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.
- 14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.

### **ARTICLE 15 - SUBMITTAL OF BID**

- 15.01 Each prospective Bidder is furnished one (1) copy of the Bidding Documents and the Bid Bond Form. The Bid form is to be completed and submitted with the Bid security.
- 15.02 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 an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to the City of Opelousas, Attn: Julius Alsandor, Mayor, P.O. Box 1879, Opelousas, LA 70571-1879.

## **INSTRUCTIONS TO BIDDERS**

### **ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within forty-eight (48) hours after Bids are opened (excluding Saturdays, Sundays and legal holidays) 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 amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

### **ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 18.01 All Bids will remain subject to acceptance for a period up to forty-five (45) calendar days after the date of the opening of bids. The Owner and lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days.

### **ARTICLE 19 - AWARD OF CONTRACT**

- 19.01 Owner reserves the right to reject any or all Bids for just cause in accordance with Public Bid Law.
- 19.02 More than one (1) 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 (1) 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, alternates and unit prices.
- 19.04 If the Contract is to be awarded, Owner will award the Contract to the lowest responsible Bidder in accordance with State law.

### **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 must be accompanied by such Bonds.

## **INSTRUCTIONS TO BIDDERS**

### **ARTICLE 21 - SIGNING OF AGREEMENT**

- 21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within fifteen (15) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten (10) days thereafter, Owner shall deliver one (1) fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

### **ARTICLE 22 - SALES AND USE TAX EXEMPTION**

- 22.01 In accordance with applicable rules adopted and promulgated by the Louisiana Department of Revenue, the Owner intends to designate the contractor and all subcontractors as its agents for the purchase and lease of materials, supplies or equipment for this Project. The contractor and all subcontractors shall accept the agency designation. The designation and acceptance thereof shall be made on the form prescribed by the Louisiana State Department of Revenue which form shall be part of the contract between the Owner, and the Contractor. A copy of this form is included in the Contract Documents in the section titled "Documents to be Completed by Successful Bidder Prior to Award of Contract".
- 22.02 The agency relationship between the Owner and the Contractor and all subcontractors shall relieve the Contractor and subcontractors (1) from paying any state or local sales or state or local use taxes on materials, supplies or equipment which is affixed to and/or made a part of the real estate of the project or work or which is permanently incorporated into the project or work and, (2) from paying any state or local use taxes on any materials, supplies or equipment which is leased and used exclusively for the project or work. Accordingly, in preparing their bids and computing costs, the Contractor and subcontractors shall not consider sales and/or use taxes which would otherwise be due.
- 22.03 The Contractor and subcontractor shall furnish a copy of such certificate to all vendors or suppliers of any of the materials, supplies or equipment described above.
- 22.04 The Contractor and subcontractors shall make all purchases and leases on behalf of and as the agent of the Owner.
- 22.05 Rules and regulations of the Louisiana Department of Revenue shall prevail over any conflicting provisions or specifications of the Contract.
- 22.06 The Contractor shall enter into a separate Contract with the Owner prior to issuance of the Notice to Proceed as it relates to the agent arrangement for sales tax exemptions. A copy of the contract is included in the Contract Documents in the section titled "Documents to be Completed by Owner".

**DOCUMENTS  
TO BE COMPLETED BY  
ALL BIDDERS**

## LOUISIANA UNIFORM PUBLIC WORK BID FORM

To: City of Opelousas  
P.O. Box 1879  
Opelousas, LA 70571-1879  
*(Owner to provide name and address of owner)*

Bid For: Water System Improvements - Relocation of  
Waterlines and Rehabilitation of Ground Storage  
Tank (MGA Project W#302)  
*(Owner to provide name of project and other identifying information)*

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Morgan Goudeau & Associates, Inc., Opelousas, Louisiana and dated: June, 2021  
*(Owner to provide name of entity preparing bidding documents.)*

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:**  
(Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging).

**TOTAL BASE BID:** For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" \*but not alternates) the sum of:

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

**ALTERNATES:** For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

**Alternate No. 1** (Water Treatment Plant By-Pass) ADD the lump sum of:

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

**Alternate No. 2** (*Owner to provide description of alternate and state whether add or deduct*) for the lump sum of:

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

**Alternate No. 3** (*Owner to provide description of alternate and state whether add or deduct*) for the lump sum of:

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

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**TITLE OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER\*\*:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

### **THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:**

\* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

\*\* **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

**BID SECURITY** in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.



## LOUISIANA UNIFORM PUBLIC WORK BID FORM

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*(Owner to provide name and address of owner)*

Bid For: Water System Improvements - Relocation of  
Waterlines and Rehabilitation of Ground Storage  
Tank (MGA Project W#302)  
*(Owner to provide name of project and other identifying information)*

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		12" D.I. waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
1	25	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		8" C-900 PVC (DR-25) waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
2	190	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		6" PVC C-900 (DR-25) waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
3	270	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		2" PVC Class 160 (SDR-26) waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
4	10	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		10" PE (DR-11) waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
5	800	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.  
 All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

## LOUISIANA UNIFORM PUBLIC WORK BID FORM

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P.O. Box 1879  
Opelousas, LA 70571-1879  
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Bid For: Water System Improvements - Relocation of  
Waterlines and Rehabilitation of Ground Storage  
Tank (MGA Project W#302)  
*(Owner to provide name of project and other identifying information)*

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		8" PE (DR-11) waterline	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
6	290	L.F.			

DESCRIPTION		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		8" x 6" tapping sleeve and valve	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
7	1	Each			

DESCRIPTION		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		6" x 6" tapping sleeve and valve	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
8	3	Each			

DESCRIPTION		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		6" Inserta-valve	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
9	3	Each			

DESCRIPTION		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #_____		2" valve and box	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
10	1	Each			

Wording for "DESCRIPTION" is to be provided by the Owner.

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*(Owner to provide name and address of owner)*

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*(Owner to provide name of project and other identifying information)*

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Cut-in 6" x 6" tee	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
11	4	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Cut-in 8" x 8" tee	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
12	2	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Tie-in to existing 12" waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
13	1	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Tie-in to existing 8" waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
14	1	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Tie-in to existing 2" waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
15	1	Each		

Wording for "DESCRIPTION" is to be provided by the Owner.

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

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*(Owner to provide name and address of owner)*

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Tank (MGA Project W#302)  
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**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Fire Hydrant Assembly	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
16	3	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Ductile Iron Fittings	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
17	2.0	Ton		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Dry bore 16" steel casing	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
18	60	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Dry bore 14" steel casing	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
19	240	L.F.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Directional bore 10" PE	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
20	720	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.  
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**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__	Plug 12" waterline		
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
21	1	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__	Plug 8" waterline		
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
22	2	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__	Plug 6" waterline		
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
23	4	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__	Plug 2" waterline		
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
24	1	Each		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__	Rehabilitate ground storage tank (repairs and lining) and painting of well discharge piping (Ref. Plan Sheet 8)		
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
25	1	Lump Sum		

Wording for "DESCRIPTION" is to be provided by the Owner.

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

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**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Disinfect ground storage tank (Ref. Plan Sheet 8)	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
26	1	Lump Sum		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Flowable fill	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
27	205	C.Y.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Limestone for Maintenance	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
28	30	Ton		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Asphalt pavement restoration	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
29	185	S.Y.		

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Temporary signs and barricades	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
30	1	Lump Sum		

Wording for "DESCRIPTION" is to be provided by the Owner.

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

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*(Owner to provide name and address of owner)*

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*(Owner to provide name of project and other identifying information)*

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		Mobilization	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
31	1	Lump Sum		

DESCRIPTION	<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		12" D.I. waterline	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-1	90	L.F.		

DESCRIPTION	<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		12" tapping sleeve and valve	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-2	190	Each		

DESCRIPTION	<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		12" gate valve with handwheel operator	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-3	2	Each		

DESCRIPTION	<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		Ductile iron fittings	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-4	0.5	Ton		

Wording for "DESCRIPTION" is to be provided by the Owner.

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**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION		<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		Labor and equipment to remove existing Well 8 discharge piping and replace with new piping (Ref. Plan Sheet 9)	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-5	1	Lump Sum			

DESCRIPTION		<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		Flowable Fill	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-6	25	C.Y.			

DESCRIPTION		<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		Limestone	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-7	5	Ton			

DESCRIPTION		<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		P.C. Concrete Pavement Restoration	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-8	35	S.Y.			

DESCRIPTION		<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt # <u>1</u>		Temporary Signs and Barricades	
REF NO.	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-9	1	Lump Sum			

Wording for "DESCRIPTION" is to be provided by the Owner.

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*(Owner to provide name and address of owner)*

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Tank (MGA Project W#302)  
*(Owner to provide name of project and other identifying information)*

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION	<input type="checkbox"/> Base Bid or <input checked="" type="checkbox"/> Alt #1		Mobilization	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
A1-10	1	Lump Sum		

DESCRIPTION	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		N/A	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
N/A	N/A	N/A	N/A	N/A

DESCRIPTION	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		N/A	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
N/A	N/A	N/A	N/A	N/A

DESCRIPTION	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		N/A	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
N/A	N/A	N/A	N/A	N/A

DESCRIPTION	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt #__		N/A	
REF NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
N/A	N/A	N/A	N/A	N/A

Wording for "DESCRIPTION" is to be provided by the Owner.

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

## CORPORATE RESOLUTION

BE IT RESOLVED by the Board of Directors of \_\_\_\_\_  
in a meeting duly assembled that \_\_\_\_\_  
(Name and title) of the Corporation is hereby authorized, empowered and directed for and on behalf of the  
Corporation to negotiate for and sign any and all bid proposals, contracts and other documents which this  
Corporation might enter into for the project entitled

“ \_\_\_\_\_  
\_\_\_\_\_”

\* \* \* \* \*

I, \_\_\_\_\_,  
Secretary of \_\_\_\_\_,  
do hereby certify that the above and foregoing is a true and correct copy of a Resolution unanimously adopted  
at a meeting of the Board of Directors of said Corporation held on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_  
, at which meeting all members of the Board of Directors were present and voted thereon and that said  
Resolution has been spread upon the minute books of the Corporation and same is now in full force and  
effect.

WITNESS MY SIGNATURE this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ at \_\_\_\_\_.

\_\_\_\_\_  
SECRETARY

SEAL

## BID BOND FORM

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_,  
as Principal, and \_\_\_\_\_, as Surety, are hereby held and firmly bound onto  
\_\_\_\_\_, as Owner in the penal sum of \_\_\_\_\_  
of total sum bid for which, well and truly to be made, hereby jointly and severally bind ourselves, our heirs,  
executives, administrators, successors and assigns.

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

The condition of the above obligation is such that whereas the Principal has submitted to \_\_\_\_\_  
\_\_\_\_\_ a certain Bid, attached hereto and hereby made a part hereof to enter into  
a Contract in writing, for the \_\_\_\_\_.

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the Form  
of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish  
a bond for his faithful performance of said Contract, and for the payment of all persons  
performing labor or furnishing materials in connection therewith, and shall in all other respects  
perform the agreement created by the acceptance of said Bid,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being  
expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no  
event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and  
its bond shall be in no way impaired or affected by any extension of the time within which the Owner may  
accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and  
such of them as are corporations have caused their corporate seals to be hereto affixed these presents to be  
signed by their proper officers, the day and year first set forth above.

Principal: \_\_\_\_\_ (L.S.)

Surety: \_\_\_\_\_

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

SEAL

### CERTIFICATE AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_ certify that I am the Secretary of the Corporation named as Principal in the within Bond; that \_\_\_\_\_ who signed the said Bond on behalf of the Principal was then \_\_\_\_\_ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said Bond was duly signed, sealed, and attested to on behalf of said corporation by authority of this governing body.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_  
(CORPORATE SEAL)

### CERTIFICATE AS TO SURETY

I, \_\_\_\_\_, certify that I am \_\_\_\_\_ of the Surety who signed the Bond. I certify that we are licensed to do business in the State of Louisiana and are currently recognized by the U.S. Department of the Treasury as acceptable sureties:

Signature: \_\_\_\_\_

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

***Power of Attorney for person signing for surety company must be attached to Bond.***

**DOCUMENTS  
TO BE COMPLETED BY  
SUCCESSFUL BIDDER  
PRIOR TO AWARD OF  
CONTRACT**

## NON-COLLUSION AFFIDAVIT

\_\_\_\_\_, being first duly sworn, deposes and says

that he is \_\_\_\_\_  
(sole owner, a partner, president, secretary, etc.)

of \_\_\_\_\_  
the party making the foregoing Bid; that such Bid is not made in the interest of or on behalf of any undisclosed person, partnership, company association, organization, or corporation; that such Bid is genuine and not collusive or sham; that said Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, nor that anyone shall refrain from bidding; that said Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Bid Price of said Bidder or of any other Bidder, not to fix any overhead, profit, or cost element of such Bid Price, nor of that of any other Bidder, nor to secure any advantage against the public body awarding the Contract or anyone interested in the Proposed Contract; that all statement contained in such Bid are true; and, further, that said Bidder has not directly or indirectly, submitted his Bid Price or any breakdown thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid and will not pay fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, nor to any member or agent thereof, nor to any other individual except to such person or persons as have a partnership or other financial interest with said Bidder in his general business.

Signed:

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

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

Subscribed and sworn to before me this

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

SEAL OF NOTARY

\_\_\_\_\_  
NOTARY PUBLIC

**(NOT REQUIRED TO BE SUBMITTED WITH BID)**  
**SUBMIT BY THE APPARENT LOW BIDDER WITHIN 10 DAYS AFTER BID OPENING**

Water System Improvements  
(Relocation of waterlines and rehabilitation of  
Ground Storage Tank)

**NAME OF PROJECT**

MGA Project W#302

**PROJECT NUMBER**

STATE OF LOUISIANA

PARISH OF ST. LANDRY

**ATTESTATIONS**

**LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS**

- A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| (a) Public bribery (R.S. 14:118)      | (c) Extortion (R.S. 14:66)        |
| (b) Corrupt influencing (R.S. 14:120) | (d) Money laundering (R.S. 14:23) |

- B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:

- |   |  |
|---|--|
| (a) Theft (R.S. 14:67)                            | (f) Bank fraud (R.S. 14:71.1)                                |
| (b) Identity Theft (R.S. 14:67.16)                | (g) Forgery (R.S. 14:72)                                     |
| (c) Theft of a business record<br>(R.S. 14:67.20) | (h) Contractors; misapplication of<br>payments (R.S. 14:202) |
| (d) False accounting (R.S. 14:70)                 | (i) Malfeasance in office (R.S. 14:134)                      |
| (e) Issuing worthless checks<br>(R.S. 14:71)      |  |

**LA. R.S. 38:2212.10 Verification of Employees**

- A. At the time of bidding, Bidder is registered and participates in a status verification system to verify that all new hires in the state of Louisiana are legal citizens of the United States or legal aliens.
- B. If awarded the contract, Bidder shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
- C. If awarded the contract, Bidder shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

**LA. R.S. 23:1726(B) CERTIFICATION REGARDING UNPAID WORKERS COMPENSATION INSURANCE**

- A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.
- B. By signing this bid/proposal, Bidder certifies that no such assessment is in effect against the bidding/proposing entity.

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**NAME OF AUTHORIZED SIGNATORY OF BIDDER**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**TITLE OF AUTHORIZED SIGNATORY OF BIDDER**

\_\_\_\_\_  
**SIGNATURE OF AUTHORIZED  
SIGNATORY OF BIDDER**





**Designation of Construction Contractor as  
Agent of a Governmental Entity  
and Exemption Certificate**

The City of Opelousas

Legal name of Governmental Entity

, an agency of the United States government, or an agency, board, commission, or instrumentality of the State of Louisiana or its political subdivisions, including parishes, municipalities and school boards, does hereby designate the following contractor as its agent for the purpose of making sales tax exempt purchases on behalf of the governmental body:

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address

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

This designation of agency shall be effective for purchases of component construction materials, taxable services and leases and rentals of tangible personal property for the following named construction project:

This designation and acceptance of agency is effective for the period \_\_\_\_\_, through \_\_\_\_\_.

Purchases for the named project during this period by the designated contractor shall be considered as the legal equivalent of purchases directly by the governmental body. Any materials purchased by this agent shall immediately, upon the vendor's delivery to the agent, become the property of this government entity. This government entity, as principal, assumes direct liability to the vendor for the payment of any property, services, leases, or rentals made by this designated agent. This agreement does not void or supersede the obligations of any party created under any construction contract related to this project, including specifically any contractual obligation of the construction contractor to submit payment to the vendors of materials or services for the project.

This contractor-agent is not authorized to delegate this purchasing agency to others; separate designations of agency by this governmental entity are required for each contractor or sub-contractor who is to purchase on behalf of this governmental entity. The undersigned hereby certify that this designation is the entirety of the agency designation agreement between them. In order for a purchase for an eligible governmental entity through a designated agent to be eligible for sales tax exemption, the designation of agency must be made, accepted, and disclosed to the vendor before or at the time of the purchase transaction.

**Designation of Agency**

\_\_\_\_\_  
Signature of Authorized Designator, Date

**Julius Alsandor**

\_\_\_\_\_  
Name of Authorized Designator

**City of Opelousas**

\_\_\_\_\_  
Name of Governmental Entity

**P.O. Box 1879**

\_\_\_\_\_  
Address

**Opelousas, LA 70571-1879**

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

**Acceptance of Agency**

\_\_\_\_\_  
Signature of Contractor Authorized Acceptor, Date

\_\_\_\_\_  
Name of Contractor's Acceptor

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Address

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

This designation of agency form, when properly executed by both the contractor and the governmental entity, shall serve as evidence of the sales tax exempt status that has been conferred onto the contractor. No other exemption certificate form is necessary to claim exemption from sales taxes.

**DOCUMENTS  
TO BE COMPLETED BY  
OWNER**

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

**THIS AGREEMENT** is by and between CITY OF OPELOUSAS  
(Hereinafter called OWNER) and \_\_\_\_\_  
(Hereinafter called CONTRACTOR).

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

**ARTICLE 1 - WORK**

- 1.01 CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The work is generally described as follows:

Water system improvements, Relocating existing waterlines at various railroad and stream crossings and Rehabilitation of an existing ground storage tank.

**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:

WATER SYSTEM IMPROVEMENTS  
(RELOCATION OF WATERLINES AND  
REHABILITATION OF GROUND STORAGE TANK)  
MGA PROJECT W#302

**ARTICLE 3 - ENGINEER**

- 3.01 The Project has been designed by

Morgan Goudeau & Associates, Inc.  
Consulting Engineers and Land Surveyors  
1703 West Landry Street  
Opelousas, Louisiana 70570

who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the work in accordance with the Contract Documents.

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

**ARTICLE 4 - CONTRACT TIMES**

4.01 Time of the Essence

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

4.02 Days to Achieve Substantial Completion and Final Payment

- A. The work will be substantially completed within 90 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 135 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 of this Agreement 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 mediation 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 \$500.00 for each day that expires after the time specified in Paragraph 4.02 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 \$500.00 for each day that expires after the time specified in Paragraph 4.02 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 Paragraph 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.

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

**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 25<sup>TH</sup> day of each month during performance of the work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established in Paragraph 2.07.A of the General Conditions or, in the event there is no schedule of values, as provided in the General Requirements:
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, in accordance with Paragraph 14.02 of the General Conditions:
    - a. 95% of work completed (with the balance being retainage); and
    - b. 100% of cost of materials and equipment not incorporated in the work (with the balance being retainage).
  2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95% 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 100% 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 - INTEREST**

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of 8% per annum.

**ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS**

- 8.01 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.

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE 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 carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. 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.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the work.

**ARTICLE 9 - CONTRACT DOCUMENTS**

9.01 Contents

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 00500-1 to 00500-7, inclusive)
  - 2. Performance Bond (pages 00600-1 to 00600-3, inclusive)

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

3. Payment Bond (pages 00600-1 to 00600-3, inclusive)
  4. General Conditions (pages 00700-3 to 00700-44, inclusive)
  5. Supplementary Conditions (pages 00800-1 to 00800-2, inclusive)
  6. Specifications as listed in the table of contents of the Project Manual
  7. Drawings consisting of a cover sheet and sheets numbered 1 through 11, inclusive, with each sheet bearing the following general title: WATER SYSTEM IMPROVEMENTS - RELOCATION OF WATERLINES AND REHABILITATION OF GROUND STORAGE TANK
  8. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive)
  9. Exhibits to this Agreement (enumerated as follows):
    - a. Notice to Proceed (page 00620-1, inclusive)
    - b. CONTRACTOR's Bid (8 pages, inclusive)
    - c. Documentation submitted by CONTRACTOR prior to Notice of Award (pages 00610-1, inclusive)
    - d. CERTIFICATE OF INSURANCE
  10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Written Amendments
    - b. Work Change Directives
    - c. Change Order(s)
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.05 of the General Conditions.

**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

**ARTICLE 10 - MISCELLANEOUS**

10.01 Terms

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 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.

10.03 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.

10.04 Severability

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

10.05 Other Provisions

NONE



**AGREEMENT BETWEEN OWNER AND CONTRACTOR  
(UNIT PRICE WORK)**

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on \_\_\_\_\_, \_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:  
**CITY OF OPELOUSAS**

CONTRACTOR:  
**<NAME>**

BY: \_\_\_\_\_

BY: \_\_\_\_\_

[CORPORATE SEAL]

[CORPORATE SEAL]

ATTEST: \_\_\_\_\_

ATTEST: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

CITY OF OPELOUSAS

\_\_\_\_\_

P.O. BOX 1879

\_\_\_\_\_

OPELOUSAS, LA 70571-1879

\_\_\_\_\_

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign a resolution or other documents authorizing execution of OWNER-CONTRACTOR Agreement.)

License No.: \_\_\_\_\_

Agent for service of process: \_\_\_\_\_

\_\_\_\_\_  
(If CONTRACTOR is a corporation or a partnership, attached evidence of authority to sign)

Designated Representative

Designated Representative

Name: JULIUS ALSANDOR

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

Title: MAYOR

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

Address: P.O. BOX 1879

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

OPELOUSAS, LA 70571-1879

\_\_\_\_\_

Phone: 337-948-2520

Phone: \_\_\_\_\_

Facsimile: 337-948-2593

Facsimile: \_\_\_\_\_

## SALES TAX EXEMPTION CONTRACT

STATE OF LOUISIANA  
PARISH OF St. Landry

### CONTRACT FOR LA R.S. 47:301(8)(c) SALES AND TAX EXEMPTION

WHEREAS, \_\_\_\_\_, (Contractor), has been awarded a Contract with the City of Opelousas, (Owner), a public entity/political subdivision, in accordance with the Louisiana Public Bid Law for the following public project:

Water System Improvements  
Relocation of Waterlines and  
Rehabilitation of Ground Storage Tank  
MGA Project W#302

WHEREAS, the Contractor and/or its subcontractors on this project, in their execution of the Project will use and/or purchase tangible property and/or goods which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Contractor and/or its subcontractors on this project, in bidding on the Project, did not include sales and use taxes on tangible property and/or goods which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Owner wishes to avail itself of the sales and use tax exemption afforded to it by LA R.S. 47:301(8)(c);

WHEREAS, the Owner wishes to avoid paying sales and use taxes when it has no legal obligation to do so;

WHEREAS, the Owner's unnecessary payment of sales and use taxes could be a violation of its duty to prudently administer the public funds in its charge;

WHEREAS, the parties may avoid the unnecessary payment of sales and use taxes if the Contractor or its subcontractors on this project act as the Owner's agent and/or instrumentality for the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Contractor and its subcontractors on this project and the Owner mutually agree to a contract of agency and/or instrumentality between them for the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project and thereby avoid the unnecessary payment of sales and/or use taxes;

NOW THEREFORE the Owner appoints the Contractor and its subcontractors on this project as its agent and/or instrumentality for purposes of the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project subject to the following conditions:

All purchases under this Contract shall be made from the public funds paid to the Contractor and/or its subcontractors on this project and shall be charged to the contract price for the Project. The Contractor and/or its subcontractors on this project shall obtain invoices for all purchases made under this Contract. The invoices shall bear the name and number of the Project as listed above. All materials and equipment shall be purchased by the Contractor and/or its subcontractors on this project in the name of the Owner using funds that are accounted for to the Owner and that are traced to public funds.

Title to all property purchased under this Contract shall immediately pass to the Owner at the time of the purchase, but the Contractor and/or its subcontractors on this project shall be the depositary or custodian of the property until the Owner accepts the Project as substantially complete at which time this Contract shall terminate.

In the event that the Contractor and/or its subcontractors on this project are subject to a sales or use tax audit by either the State of Louisiana or a local government subdivision and the taxing authority assess taxes on any materials or equipment incorporated into the Project or use in its work, the Owner shall be responsible for defending the tax-exempt status or the purchases at issue. Moreover, should the taxing authority prevail in imposing its sales or use tax, the Owner shall be ultimately liable for remitting to the taxing authority the taxes, interest and penalties ultimately found due unless the Contractor and/or its subcontractors on this project have failed to comply with this Contract.

This Contract does not limit or otherwise alter Contractor's responsibilities (1) to fully insure materials and equipment to be furnished by Contractor; (2) to insure the work at all times prior to substantial completion; (3) to fully warrant all materials and equipment furnished by Contractor; (4) to alter the method or time frames for payments established under the Project; (5) to change the rights of the Owner to accept or reject the work or any part thereof or alter the manner or time frames in which inspections may be made by the Engineer or Architect on behalf of the Owner; (6) to provide for the safety and protection of materials and equipment whether in storage on or off site and regardless whether titled to the contracting agency as part of the work; (7) to maintain liability and property insurance, specifically including coverage for damages to the materials and equipment prior to final acceptance and claims for damages because of bodily injury, sickness, or death and any of the Contractor's and/or its subcontractors on this project employees or any person other than the Contractor's and/or its subcontractors on this project employees; (8) to properly correct the work as required by the Engineer or Architect or diminish the Owner's and Engineer's or Architect's right to reject any portions of the work.

The Contractor accepts its appointment as indicated by the signature of its authorized agent on the date shown below. The subcontractors of the Contractor on this project shall accept this appointment by their execution of a subcontract with the Contractor to which this Sales Tax Exemption Agreement shall be incorporated by reference and attached as an Exhibit thereto.

\_\_\_\_\_  
CONTRACTOR

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

Sworn to and subscribed before me on this \_\_\_\_ day of \_\_\_\_\_, 2021

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

\_\_\_\_\_  
OWNER Julius Alsandor, Mayor

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
DATE

Sworn to and subscribed before me on this \_\_\_\_ day of \_\_\_\_\_, 2021

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

**DOCUMENTS  
TO BE COMPLETED BY  
SUCCESSFUL BIDDER**

## PERFORMANCE-PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we \_\_\_\_\_,  
a \_\_\_\_\_ doing business as \_\_\_\_\_,  
hereinafter called "Principal" and \_\_\_\_\_ of \_\_\_\_\_,  
State of \_\_\_\_\_, hereinafter called the "Surety," are held and firmly bound unto  
\_\_\_\_\_, Louisiana, hereinafter called "Owner" in the penal sum of \_\_\_\_\_  
\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents  
(\$ \_\_\_\_\_) in lawful money of the United States, for the payment of which sum will and  
truly be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally,  
firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain Contract  
with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, a copy of which is hereto attached and  
made apart hereof for the construction of: \_\_\_\_\_  
\_\_\_\_\_

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertaking,  
covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any  
extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he/she shall  
satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the  
Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and  
repay the Owner all outlay and expense which the Owner may incur in making good any default, and shall  
promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for or  
performing labor in the prosecution of the work provided for in such Contract, and any authorized extension  
or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs  
on machinery, equipment and tools, consumed or used in connection with the construction of such work, and  
all insurance premiums on said work, and for all labor performed in such work whether by Subcontractor or  
otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change,  
extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder  
or the Specifications accompanying the same shall in any way affect its obligation on this bond, and it does  
hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract  
or to the Specifications.

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right  
of any beneficiary hereunder, whose claim may be unsatisfied.

**PERFORMANCE-PAYMENT BOND**

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts each, one (1) of which shall be deemed an original, this the \_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

ATTEST:  
SEAL

\_\_\_\_\_  
PRINCIPAL

\_\_\_\_\_  
PRINCIPAL SECRETARY

BY: \_\_\_\_\_

\_\_\_\_\_  
WITNESS AS TO PRINCIPAL

\_\_\_\_\_  
ADDRESS-ZIP CODE

\_\_\_\_\_  
ADDRESS-ZIP CODE

ATTEST:  
SEAL

\_\_\_\_\_  
SURETY

\_\_\_\_\_  
SURETY

\_\_\_\_\_  
WITNESS AS TO SURETY

\_\_\_\_\_  
ATTORNEY-IN-FACT

\_\_\_\_\_  
ADDRESS-ZIP CODE

\_\_\_\_\_  
ADDRESS-ZIP CODE

COUNTERSIGNED

\_\_\_\_\_  
ATTORNEY-IN-FACT  
STATE OF LOUISIANA

BY: \_\_\_\_\_

### **CERTIFICATE AS TO CORPORATE PRINCIPAL**

I, \_\_\_\_\_, certify that I am the Secretary of the Corporation named as Principal in the within Bond; that \_\_\_\_\_ who signed the said Bond on behalf of the Principal was then \_\_\_\_\_ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said Bond was duly signed, sealed, and attested to on behalf of said corporation by authority of this governing body.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_  
(CORPORATE SEAL)

### **CERTIFICATE AS TO SURETY**

I, \_\_\_\_\_, certify that I am \_\_\_\_\_ of the Surety who signed the Bond. I certify that we are licensed to do business in the State of Louisiana and are currently recognized by the U.S. Department of the Treasury as acceptable sureties:

Signature: \_\_\_\_\_

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

***Power of Attorney for person signing for surety company must be attached to Bond.***



## NOTICE OF AWARD

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

PROJECT DESCRIPTION: Water system improvements, Relocating existing waterlines at various railroad and stream crossings and Rehabilitation of an existing ground storage tank.

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated \_\_\_\_\_, 20\_\_\_\_, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$\_\_\_\_\_.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S PERFORMANCE BOND, PAYMENT BOND and certificates of insurance within fifteen (15) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within fifteen (15) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2021.

CITY OF OPELOUSAS  
OWNER

BY: \_\_\_\_\_

TITLE: MAYOR

## ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD  
is hereby acknowledged by:

\_\_\_\_\_  
this the \_\_\_\_\_ day of \_\_\_\_\_, 2021.

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

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

**DOCUMENTS  
TO BE UTILIZED DURING  
CONSTRUCTION**

## NOTICE TO PROCEED

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

DATE: \_\_\_\_\_  
PROJECT: WATER SYSTEM IMPROVEMENTS  
RELOCATION OF WATERLINES AND  
REHABILITATION OF GROUND STORAGE  
TANK - MGA PROJECT W#302

You are hereby notified to commence WORK in accordance with the Agreement dated \_\_\_\_\_, 20\_\_\_\_, on or before \_\_\_\_\_, 20\_\_\_\_, and you are to complete the WORK within 90 consecutive calendar days thereafter. The date of completion of all WORK is therefore \_\_\_\_\_, 20\_\_\_\_. Liquidated damages are \$500.00 per day in accordance with Article 4.03 of the Agreement.

CITY OF OPELOUSAS  
OWNER

BY: \_\_\_\_\_

TITLE: PROJECT ENGINEER

## ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED  
is hereby acknowledged by:

\_\_\_\_\_

this the \_\_\_\_\_ day of \_\_\_\_\_, 2021

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

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





### CERTIFICATE OF SUBSTANTIAL COMPLETION

WATER SYSTEM IMPROVEMENTS  
(RELOCATION OF WATERLINES AND  
REHABILITATION OF GROUND STORAGE TANK)

MORGAN GOUDEAU & ASSOCIATES, INC.  
1703 WEST LANDRY STREET  
OPELOUSAS, LOUISIANA 70570  
MGA PROJECT W#302

TO: CITY OF OPELOUSAS  
P.O. BOX 1879  
OPELOUSAS, LA 70571-1879

CONTRACTOR:  
CONTRACT FOR:  
CONTRACT DATE:

DATE OF ISSUANCE:

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as \_\_\_\_\_ which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below. (See Attached)

---

#### DEFINITION OF DATE AS SUBSTANTIAL COMPLETION

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The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Engineer, is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list will be the date of final payment unless otherwise agreed to in writing.

Morgan Goudeau & Associates, Inc.  
ENGINEER

BY

DATE

The Contractor will complete or correct the Work on the list of items attached hereto within 45 days from the above Date of Substantial Completion.

CONTRACTOR

BY

DATE

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at \_\_\_\_\_ (TIME) on \_\_\_\_\_ (DATE).

City of Opelousas  
OWNER

BY

DATE

## **GENERAL CONDITIONS**





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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

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#### 1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *AGENCY*--The Federal or state agency named as such in the Agreement.

3. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

4. *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.

5. *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.

6. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

9. *Bonds*--Performance and payment bonds and other instruments of security.

10. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and AGENCY 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.

11. *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.

12. *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.

13. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award), the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

14. *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).

15. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

16. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

17. *Cost of the Work*--See paragraph 11.01.A for definition.

18. *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.

19. *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.

20. *ENGINEER*--The individual or entity named as such in the Agreement.

21. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

22. *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.

23. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

24. *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 in connection with the Work.

25. *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.

26. *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.

27. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

28. *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.

29. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

30. *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.

31. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

32. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

33. *PCBs*--Polychlorinated biphenyls.

34. *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.

35. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

36. *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.

37. *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.

38. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

39. *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.

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 technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details 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 is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

46. *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 any Subcontractor.

47. *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.

48. *Unit Price Work*--Work to be paid for on the basis of unit prices.

49. *Work*--The entire construction or the various separately identifiable parts thereof required to be

provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

50. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and AGENCY upon recommendation of the 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.

51. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER, CONTRACTOR, and AGENCY upon recommendation of ENGINEER on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

## 1.02 Terminology

### A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or 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 action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 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 9.10 or any other provision of the Contract Documents.

## B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

## C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or 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).

## D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. 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.

E. Unless stated otherwise in the Contract Documents, words or phrases which 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

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### 2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

### 2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. 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 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. *CONTRACTOR's Review of Contract Documents:* 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 may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, 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 knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its 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 Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; 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.

C. *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.

#### 2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, AGENCY 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.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

#### 2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten 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 any specified Milestones and 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 Shop Drawing and Sample 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

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#### 3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for 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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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.

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, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees 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. 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. 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; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known 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:

a. the provisions of any standard, specification, manual, code, or instruction (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 in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) 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: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

### 3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not 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 ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

### ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

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#### 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, 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:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER, or any of ENGINEER's Consultants 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 at or contiguous to the Site 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 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 9.08 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 in respect of 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 within the time and 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, OWNER, ENGINEER, and ENGINEER's Consultants 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.

#### 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; 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 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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general 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, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for 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); 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.

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 to CONTRACTOR written notice: (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, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other 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.E 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other 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.F 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 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

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 CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, 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 current 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 must be accompanied by a certified copy of such agent's authority to act.

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 within 20 days thereafter substitute 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 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. OWNER shall deliver to CONTRACTOR, with copies to each additional insured 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.

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other 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: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) 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 so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, 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, partners, employees, agents, and other 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;

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 completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. 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);

6. 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

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and 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, CONTRACTOR 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, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, 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, 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 additional insured to whom a certificate of insurance has been issued.

8. 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 additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

B. CONTRACTOR shall purchase and maintain such boiler and machinery 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, ENGINEER, ENGINEER's Consultants, and any other

individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. 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.

#### 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, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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 additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other 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, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril 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, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other 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 CONTRACTOR and made payable to CONTRACTOR as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. CONTRACTOR 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 or Written Amendment.

B. CONTRACTOR 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 CONTRACTOR's exercise of this power. If such objection be made, CONTRACTOR 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, CONTRACTOR as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, CONTRACTOR 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 within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. 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

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#### 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, but 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. CONTRACTOR

shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

#### 6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on 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 General Requirements, 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 warranties and guarantees specifically called for 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. 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 (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

#### 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: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will

conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

#### 2. Substitute Items

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 that 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 procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first 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 shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not 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 work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also 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, all of which will be considered by ENGINEER in evaluating the

proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and 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 procedure for review by ENGINEER will be similar to that provided in subparagraph 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 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 either a Change Order for a substitute or 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 time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such 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 initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Sub-

contractor, 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 or Written Amendment signed. 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 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 shall it 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.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcon-

tractors 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 an additional insured 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, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other 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. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants 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. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

#### *6.09 Laws and Regulations*

A. CONTRACTOR shall give all notices and 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 primary 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 may 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.

#### *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, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants 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 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.

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, Written Amendments, 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. 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. 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 ENGINEER's Consultant, 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). 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.

#### 6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The 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.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with

the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

#### D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have 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.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

#### E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample 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 of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.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 approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

#### F. Resubmittal Procedures:

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

#### 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, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. 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.

B. 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 acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

#### 6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to 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:

1. 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; and

2. is caused in whole or in part 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees 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 Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them 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.

## ARTICLE 7 - OTHER WORK

### 7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let 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.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, 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 their work and will only cut or alter their 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.

## ARTICLE 8 - OWNER'S RESPONSIBILITIES

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### 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 Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly 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 in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

### 8.06 *Insurance*

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

### 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 in 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. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

## ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

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### 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 and will not be changed without written consent of OWNER and ENGINEER.

### 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 9.10, and 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 responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. 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 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. 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, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

#### 9.05 *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 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, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

#### 9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or 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.

#### 9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

#### 9.08 *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.

#### 9.09 *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. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, 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. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

#### 9.10 *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.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

### ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

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#### 10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, subject to written approval by AGENCY at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, 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.B.

#### 10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) 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

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 notice 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) is required by the provisions of any Bond to be given to a surety, 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 and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter 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. Notice of the amount or extent of the Claim, dispute, or other matter 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, dispute, or other matter). 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 Time 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).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction, within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

### ARTICLE 11 - COST OF THE WORK; CASH 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 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 include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

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 at the Site. 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.

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, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 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, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is 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, 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.

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 and 11.01.B.

**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 Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the 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.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, 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. 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 9.08.

B. 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.

C. 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 by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

2. 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

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### 12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price 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. 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 paragraph 12.01.C.2.a 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;

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 (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) 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 (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) 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.

#### 12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to 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.

#### 12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

#### 12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other

contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

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

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#### 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. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

#### 13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, 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, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site 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;
2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; 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, it must, if requested by ENGINEER, be uncovered 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. If it is found that such 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 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. If,

however, such 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 Milestones), 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. 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).

#### 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 Laws or Regulations or 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 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: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) 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.



If CONTRACTOR does not promptly comply with the terms of such 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, and 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.

B. 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 or by Written Amendment.

C. 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.

D. 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 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 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 and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and 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 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 (or Milestones) 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

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### 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 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 and 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*

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 on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to 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: (i) 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 (ii) that 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 to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or 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 referred to 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 Written Amendment or 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;

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 must 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 corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined 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.

#### 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. Promptly thereafter, OWNER, AGENCY, CONTRACTOR, and ENGINEER shall make a prefinal 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and 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 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. 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.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of 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, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. 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. 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.

2. No 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, AGENCY 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: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) 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 or OWNER's property might in any way be responsible 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. 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 will become due and, when due, 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 and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the 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. The remaining balance of any sum included in the final Application for payment but held by OWNER for Work not fully completed and accepted will become due when the Work is fully completed and accepted.

*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 writing which are still unsettled.

**ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION**

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*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 allowed 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);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's 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 the surety, if any) seven days written notice, terminate the services of CONTRACTOR, 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), 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 finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. 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.

C. 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.

#### 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, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for 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. for 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 uncom-

pleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for 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. for 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, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or 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. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 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

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#### 16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies

## ARTICLE 17 - MISCELLANEOUS

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### 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 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 if 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, and 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 Agreement.

### 17.05 *Controlling Law*

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

## ARTICLE 18-FEDERAL REQUIREMENTS

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### 18.01. *AGENCY Not a Party*

A. This Contract is expected to be funded in part with funds provided by AGENCY. Neither AGENCY, nor any of its departments, entities, or employees is a party to this Contract.

### 18.02. *Contract Approval*

A. OWNER and CONTRACTOR will furnish OWNER'S attorney such evidence as required so that OWNER'S attorney can complete and execute the following "Certificate of Owner's Attorney" (Exhibit GC-A) before OWNER submits the executed Contract Documents to AGENCY for approval.

B. Concurrence by AGENCY in the award of the Contract is required before the Contract is effective.

### 18.03. *Conflict of Interest*

A. CONTRACTOR may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer.

B. OWNER's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in CONTRACTOR. OWNER's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from CONTRACTOR or subcontractors.

### 18.04. *Gratuities*

A. If OWNER finds after a notice and hearing that CONTRACTOR, or any of CONTRACTOR's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of OWNER or AGENCY in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, OWNER may, by written notice to CONTRACTOR, terminate this Contract. OWNER may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which OWNER bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.



B. In the event this Contract is terminated as provided in paragraph 18.04.A, OWNER may pursue the same remedies against CONTRACTOR as it could pursue in the event of a breach of this Contract by CONTRACTOR. As a penalty, in addition to any other damages to which it may be entitled by law, OWNER may pursue exemplary damages in an amount (as determined by OWNER) which shall not be less than three nor more than ten times the costs CONTRACTOR incurs in providing any such gratuities to any such officer or employee.

#### 18.05. *Audit and Access to Records*

A. For all negotiated contracts and negotiated modifications (except those of \$10,000 or less), OWNER, AGENCY, the Comptroller General, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the CONTRACTOR, which are pertinent to the Contract, for the purpose of making audits, examinations, excerpts and transcriptions. CONTRACTOR shall maintain all required records for three years after final payment is made and all other pending matters are closed.

#### 18.06. *Small, Minority and Women's Businesses*

A. If CONTRACTOR intends to let any subcontracts for a portion of the work, CONTRACTOR shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) CONTRACTOR is encouraged to procure goods and services from labor surplus area firms.

#### 18.07. *Anti-Kickback*

A. CONTRACTOR shall comply with the Copeland Anti-Kickback Act (18 USC 874) as supplemented in Department of Labor regulations (29 CFR Part 3). This act provides that CONTRACTOR shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are

otherwise entitled. OWNER shall report all suspected or reported violations to AGENCY.

#### 18.08. *Violating Facilities*

A. Where this Contract exceeds \$100,000 CONTRACTOR shall comply with all applicable standards, orders or requirements issued under section 306 of the Clean Air Act (42 USC 1857(h)), section 508 of the Clean Water Act (33 USC 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15) which prohibit the awarding of non-exempt federal contracts, grants, or loans to facilities included on EPA's list of violating facilities. CONTRACTOR will report violations to the EPA.

#### 18.09. *State Energy Policy*

A. CONTRACTOR shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

#### 18.10. *Equal Opportunity Requirements*

A. If this Contract exceeds \$10,000, CONTRACTOR shall comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60).

B. CONTRACTOR's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and CONTRACTOR shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from CONTRACTOR to CONTRACTOR or from project to project for the sole purpose of meeting CONTRACTOR's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

C. CONTRACTOR shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name,



address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

18.11. *Restrictions on Lobbying*

A. CONTRACTOR and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable AGENCY regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, CONTRACTOR must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Necessary certification and disclosure forms shall be provided by OWNER.

18.12. *Environmental Requirements*

A. When constructing a project involving trenching and/or other related earth excavations, CONTRACTOR shall comply with the following environmental constraints:

1. Wetlands -- When disposing of excess, spoil, or other construction materials on public or private property, CONTRACTOR shall not fill in or otherwise convert wetlands.

2. Floodplains -- When disposing of excess, spoil, or other construction materials on public or private property, CONTRACTOR shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps.

3. Historic Preservation -- Any excavation by CONTRACTOR that uncovers an historical or archaeological artifact shall be immediately reported to OWNER and a representative of AGENCY. Construction shall be temporarily halted pending the notification process and further directions issued by AGENCY after consultation with the State Historic Preservation Officer (SHPO).

4. Endangered Species -- CONTRACTOR shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of CONTRACTOR, CONTRACTOR will immediately report this evidence to OWNER and a representative of AGENCY. Construction shall be temporarily halted pending the notification process and further directions issued by AGENCY after consultation with the U.S. Fish and Wildlife Service.

EXHIBIT GC-A

Certificate of Owner's Attorney

I, the undersigned, \_\_\_\_\_, the duly authorized and acting legal representative of \_\_\_\_\_, do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

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

NOTE: Delete phrase "performance and payment bonds" when not applicable.

## **SUPPLEMENTARY CONDITIONS**



## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

SC-1.01.A.10 Add the following language after the word "AGENCY" in the first sentence of Paragraph 1.01.A.10: (IF APPLICABLE)

SC-1.01.A.21 Add the following new paragraph immediately after Paragraph 1.01.A.21:

The Engineers Consultants with respect to the Project are as follows:

Electrical: N/A

Structural: N/A

Resident Project Representative: Morgan Goudeau & Associates, Inc. and  
Technical Inspectors

SC-4.02 Delete Paragraph 4.02 in its entirety. (There are no reports available outlining subsurface or Physical conditions at the site.)

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety. (There are no reports available outlining Hazardous Environmental Conditions at the site.)

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

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under paragraphs 5.04.A.1 and A.2 of the General Conditions:

- |  |                |
|--|----------------|
| a. State:  | Statutory      |
| b. Applicable Federal<br>(E.g., Longshoreman's): | Statutory      |
| c. Employer's Liability:                         | \$1,000,000.00 |

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

- |   |                |
|---|----------------|
| a. General Aggregate  | \$2,000,000.00 |
| b. Products - Completed Operations Aggregate  | \$2,000,000.00 |
| c. Personal and Advertising Injury  | \$1,000,000.00 |
| d. Each Occurrence (Bodily Injury and Property<br>Damage)   | \$1,000,000.00 |
| e. Property Damage Liability Insurance will provide<br>Explosion, Collapse, and Underground coverages<br>where applicable |                |
| f. Excess or Umbrella Liability   |                |
| 1. General Aggregate  | \$1,000,000.00 |
| 2. Each Occurrence  | \$1,000,000.00 |

## SUPPLEMENTARY CONDITIONS

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

- a. Bodily Injury:
  - Each Person \$1,000,000.00
  - Each Accident \$1,000,000.00
- b. Property Damage:
  - Each Accident \$ 500,000.00
- c. Combined Single Limit of: \$1,000,000.00

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

- a. Bodily Injury:
  - Each Accident \$1,000,000.00
  - Annual Aggregate \$1,000,000.00
- b. Property Damage:
  - Each Accident \$1,000,000.00
  - Annual Aggregate \$1,000,000.00

5. Contractor shall also purchase Railroad Protective Liability (RPL) in the name of the Acadiana Railway Company, Inc. and Union Pacific Railroad as required by the applicable Railroad Company permit. Conditions and limits of liability shall be as required by the permits. Additionally, the General Liability insurance certificate required shall list each railroad company as additional insured.

SC-5.06 Delete this paragraph in its entirety. Builder's Risk Insurance not required for this project.

SC-6.05.A Delete paragraph 6.05.A and replace with the following:

- A. The name of a certain brand, make, manufacturer, or definite specifications is to denote the quality of standard of the article desired, but does not restrict bidders to the specific brand, make, manufacturer, or specification named. It is to set forth and convey to prospective bidders the general style, type, character, and quality of the article desired. When in specifications or contract documents a particular brand, make of material, device, or equipment is shown or specified, such brand, make of material, device, or equipment shall be regarded merely as a standard. When in specifications or contract documents, engineer specifies a particular brand, make of material, device, or equipment, or equal thereto, he shall adequately identify said product by including, minimally, the model or catalog number of the product. If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven (7) working days prior to the opening of bids. Within three (3) days, exclusive of holidays and weekends, after such submission, the engineer shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted.

SC-6.05.E Delete this paragraph in its entirety.

SC-6.06.A & B Delete these paragraphs in their entirety.

SC-6.10.A Delete paragraph 6.10.A in its entirety and replace with the following:

- A. Contractor shall include all city, state, and federal taxes and sales taxes in his bid except when exempted as an Agent of Governmental Entity by Louisiana Department of Revenue Form LDR R-1020. Tax exempt status will be granted to the Contractor, providing the Contractor processes the necessary LDR form(s).

## SUPPLEMENTARY CONDITIONS

- B. In accordance with applicable rules adopted and promulgated by the Louisiana Department of Revenue, the Owner intends to designate the contractor and all subcontractors as its agents for the purchase and lease of materials, supplies or equipment for this Project. The contractor and all subcontractors shall accept the agency designation. The designation and acceptance thereof shall be made on the form prescribed by the Louisiana State Department of Revenue which form shall be part of the contract between the Owner, and the Contractor. A copy of this form is included in the Contract Documents in the section titled "Documents to be Completed by Successful Bidder and Prior to Award of Contract".

SC-11.03.C Delete this paragraph in its entirety.

SC-14.02.C.1 Amend the first sentence of Paragraph 14.02.C.1 as follows:

Delete the word "Ten" and replace with the word "Thirty".

SC-16 Add the following new paragraph immediately after Paragraph 16.01:

### SC-16.02 - Mediation

- A. Owner and Contractor agree that they shall submit any and all unsettled claims or counter-claims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof to mediation by an experienced mediator acceptable to all parties involved in the dispute. Should the dispute not be settled through mediation, the Owner or Contractor may exercise such rights or remedies as either may otherwise have by Laws or Regulations in respect to any dispute.





## **DRAWINGS AND SCHEDULES**

<u>Sheet</u>	<u>Description</u>
1	Title Sheet
2	Vicinity Map
3	Water Plan - Wallior Street
4	Water Plan - Rice Lane
5	Water Plan - Pulford Street
6	Water Plan - Planters Street
7	Water Plan - I-49/Bayou Callahan Crossing
8	Ground Storage Tank Rehabilitation Plan - Med-South Well Site
9	Water Plan - Water Treatment Plant By-Pass Line
10	Typical Details
11	Typical Details



## **DIVISION 1 - GENERAL REQUIREMENTS**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01010 - SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.01    LOCATION OF WORK**

All of the work of this Contract is located in rights-of-way servitudes, or on property owned by the Owner.

**1.02    WORK TO BE DONE**

- A. The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by these Specifications and as shown on the Drawings, all as prepared by Morgan Goudeau and Associates, Inc.
- B. The Contractor shall perform the work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, cleanup, replacements and restoration, including restoration of vegetative cover required as a result of damages caused during this construction.
- C. All materials, equipment, skills, tools and labor which are reasonably and properly inferable and necessary for the proper completion of the work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.
- D. The Contractor shall comply with all Federal, State, and local codes which are applicable to the proposed construction work.

**1.03    GENERAL DESCRIPTION OF WORK TO BE PERFORMED**

- A. The work included in the Contract shall be described in the Construction Contract.
- B. All work shall be done as described in the Specifications and as shown on the Drawings, complete, tested and ready for operation.

**1.04    WORK SEQUENCE**

- A. A sequence of construction must be developed so as to minimize the temporary loss of electrical power, water and gas to all buildings on all streets within and around the limits of the project. Driveways and pedestrian entrances to all buildings or residences must be provided and maintained at all times. No direct pay will be made for minimizing temporary loss of utilities and providing and maintaining driveways and entrances.
- B. If the Owner is desirous of performing certain portions of the project prior to other portions, the sequence of work shall be performed in accordance with the Contract Documents and shall be stated in the Drawings. The Contractor shall advise the Owner of any adverse effects the desired sequence of work may have on the successful completion or operation of the project.

**1.05    SCHEDULING OF WORK**

- A. Prior to commencement of work, a pre-construction conference shall be conducted and a proposed schedule of work and sequence of construction shall be submitted to the Engineer by the Contractor for approval. If the presence of a Project Engineer is required, the Contractor will

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01010 - SUMMARY OF WORK**

be required to schedule work so that such personnel will not be required to be on duty on Sundays.

- B. The Contractor shall cooperate fully with all utility forces of the Owner or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the work, and shall schedule the work so as to minimize interference with said relocation, altering, or other rearranging of facilities.
- C. The Contractor shall schedule and perform the work in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewage, drainage structures, ditches, and canals, gas, and telephone. The Contractor shall also deliver notice to property occupants (private and public) of all planned disruption to roadways, driveways, and utilities seventy-two (72) hours in advance of the disruption.
- D. After work has begun on any portion or designated part of the project, it shall be carried forward to its final completion. All work shall conform to the provisions of the approved Contractor's schedule.
- E. Prior to commencement of any phase of work, the Contractor is required to notify the Engineer twenty-four (24) hours in advance.

**1.06 SPECIFICATIONS AND DRAWINGS**

**A. Specifications**

The Technical Specifications consist of three parts: General, Products, and Execution. The General section contains general requirements which govern the work. The Products and Execution sections modify and supplement these by detailed requirements of the work and shall always govern whenever there appears to be a conflict.

**B. Intent**

All work called for in the Specifications applicable to the Contract but not shown on the Drawings in their present form or vice versa shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications but involved in carrying out their intent or in the complete and proper execution of the work is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specification shall be made upon that basis.

**C. Conflict Between Drawings and Specifications**

Where an obvious conflict exists between the Drawings and Specifications, the Engineer shall decide which governs and the Contractor shall comply with the decision. Such decision shall not be grounds for additional payment to the Contractor, i.e., the Contractor shall include the price of the most expensive alternative in his bid.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01010 - SUMMARY OF WORK**

**1.07 CONTRACTOR'S RESPONSIBILITY CONCERNING DRAWINGS AND SPECIFICATIONS**

- A. All Drawings, project Specifications and Addenda are mechanically reproduced. The Contractor is responsible for checking his sets of Drawings and Specifications to assure they are complete in number and all sheets are legible. The Engineer will replace any copies of sheets as necessary without additional charge to the Contractor when notified.
- B. Contractor is responsible for compliance with all Drawings, drawing revisions, Specifications and Addenda to Specifications, whether or not the set(s) issued to the Contractor are complete and totally legible.
- C. It shall be understood that the failure of the Contractor to review and verify his set(s) of Drawings, drawing revisions, project Specifications, and Addenda for completeness and legibility which results in additional costs to the Contractor shall in no way increase the cost of the project to the Owner or the Owner's Engineer after bids are received.
- D. Contractor shall have present on the jobsite at all times a minimum of two (2) complete sets of construction Drawings and Specifications. One (1) set shall be used for record keeping for preparation of record drawings upon completion of project.

**1.08 RIGHTS OF LAND USAGE**

- A. Refer to Article 4 and 8.4 of the General Conditions. All permanent lands, rights-of-way, and easements for utility lines or access to the work, as indicated on the Drawings, shall be furnished by the Owner. The location and limits of both permanent and temporary lands for the work, if not shown on the Drawings, will be indicated in detailed survey plats, descriptions and titles. Copies of available documents will be furnished by the Owner upon request. Copies of permits issued to the Owner will be made available upon request. The Contractor shall keep his work within the limits of the lands for the work. Storage of the Contractor's material and equipment on privately owned lands which are outside the limits of land for the work or are inside the limits of lawful use of publicly owned lands shall only be done with written agreement between the property owner and the Contractor, subject to notification of the Engineer and the Owner by the Contractor.
- B. The land available for the Contractor's use during the performance of the work is limited to the area defined by that area which is shown on the Plans.
- C. Nothing in this Contract shall imply that the Contractor has exclusive use of roadways or public and/or private land employed to perform the work.
- D. In addition, areas of privately owned land may be made available through a right-of-way document executed by the property owner and the Owner for the Contractor's use subject to provisions of the right-of-way document. These areas and their use limitations are as follows:
  - 1. The Contractor's use of this area shall be limited to the direct performance of the work and shall not be used for storage of materials and/or equipment. Existing pavements, sidewalks, landscape and all miscellaneous items within the boundaries shall be removed as required to perform the work and be immediately restored to an equal or better condition upon successful completion of the work, all in accordance with the Contract Documents.
  - 2. The Contractor is hereby made aware that the area is an active site and special measures will be required to maintain traffic and access to the property at all times. All work in this area

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01010 - SUMMARY OF WORK**

must be coordinated with the Owner and the Contractor shall minimize any disruption to the normal activities of the Owner.

- E. All other land deemed necessary by the Contractor for the storage of materials and equipment and other facilities or required for the performance of the work shall be arranged for by the Contractor at no additional cost to the Owner.

**1.09 RAIN DAYS**

- A. If requested the Contractor shall be granted time extensions for excessive rain days, beyond the reasonably anticipated days of adverse weather. This time extension must be requested monthly. The following are considered reasonably anticipated days of adverse weather on a monthly basis.

January	<u>11</u>	days	July	<u>6</u>	days
February	<u>10</u>	days	August	<u>5</u>	days
March	<u>8</u>	days	September	<u>4</u>	days
April	<u>7</u>	days	October	<u>3</u>	days
May	<u>5</u>	days	November	<u>5</u>	days
June	<u>6</u>	days	December	<u>8</u>	days

**1.10 OWNER OCCUPANCY**

- A. Owner will have full access to and use of all existing Owner-owned facilities during the entire period of construction for the conduct of his normal operations. Cooperate with Engineer in all construction operations to minimize conflict and to facilitate Owner usage. A listing of the Owner's existing facilities in conjunction with this project may be shown in the Drawings.

**1.11 PARTIAL OWNER OCCUPANCY**

- A. The Contractor shall schedule his operations for completion of portions of the work, as designated, for the Owner's occupancy prior to Substantial Completion of the entire work. Refer to Paragraph 1.04 Work Sequence for completion schedule.

**1.12 OWNER FURNISHED ITEMS**

- A. Items to be furnished by the Owner on this project shall be listed in the Supplementary Conditions. If no items are listed in the Supplementary Conditions, it is understood by all parties that materials and/or equipment furnished on this project shall be by the Contractor.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION NOT USED**

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01025 (WD) - MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

**1.01 SCOPE**

- A. The scope of this Section defines the items included in each Bid Item. Payment will be made based on the specified items included in the description in this Section for each Bid Item.
- B. All Contract Prices included in the Schedule of Bid Items will be full compensation for all labor, materials, tools, equipment, procedures and incidentals necessary to complete the work as shown on the Drawings and/or as described in the Specifications for the work to be performed under this Contract. Payment for all items listed in the Schedule of Bid Items will constitute full compensation for all work specified to be performed under this project.

**1.02 FURNISH AND INSTALL WATERLINE - (ITEMS 1-6 and A1-1)**

**A. Measurement**

The work will be measured by the actual length (linear foot) of waterline of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from center of fitting or appurtenance to center line of fitting or appurtenance.

**B. Payment**

All work performed and measured as provided in paragraph 1.02.A will be paid for as "Furnish and Install Waterline" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for furnishing and installing waterline as specified in Section 02510.

**1.03 FURNISH AND INSTALL TAPPING SLEEVE AND VALVE - (ITEMS 7-8 AND A1-2)**

**A. Measurement**

The work will be measured by the actual number of tapping sleeves and valves of size installed which are included on the Drawings or installed as directed by the Engineer.

**B. Payment**

All work performed and measured as provided in paragraph 1.03.A will be paid for as "Furnish and Install Tapping Sleeve and Valve" of size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing tapping sleeves and valves as specified in Section 02510.

**1.04 FURNISH AND INSTALL INSERTA-VALVE - (ITEM 9)**

**A. Measurement**

The work will be measured by the actual number of inserta-valves of size installed which are included on the Drawings or installed as directed by the Engineer.

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B. Payment

All work performed and measured as provided in paragraph 1.04.A will be paid for as "Furnish and Install Inserta-Valve" of size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing inserta-valves as specified in Section 02510.

1.05 FURNISH AND INSTALL GATE VALVE WITH HANDWHEEL OPERATOR - (ITEM A1-3)

A. Measurement

The work will be measured by the actual number of gate valves of the size installed which are included on the Drawings or installed as directed by the Engineer, including any necessary joint adapters for installing the gate valves in the system.

B. Payment

All work performed and measured as provided in paragraph 1.05.A will be paid for as "Furnish and Install Gate Valve with Handwheel Operator" of the size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing gate valves as specified in Section 02512.

1.06 FURNISH AND INSTALL VALVE AND BOX- (ITEM 10)

A. Measurement

The work will be measured by the actual number of valves and valve boxes of the size installed which are included on the Drawings or installed as directed by the Engineer, including any necessary joint adapters for installing the valves in the system.

B. Payment

All work performed and measured as provided in paragraph 1.06.A will be paid for as "Furnish and Install Valve and Box" of the size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing valves as specified in Section 02512.

1.07 CUT-IN TEE- (ITEMS 11-12)

A. Measurement

The work will be measured by the actual number of tees of size installed which are included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.07.A will be paid for as "Cut-In to Tee" of size installed at the unit price bid per each, which said price shall be full compensation for cutting-in to tees as specified in Section 02510.

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**1.08 TIE-IN TO EXISTING WATERLINE - (ITEMS 13-15)**

**A. Measurement**

The work will be measured by the actual number of tie-in to existing waterline of size installed which are included on the Drawings or installed as directed by the Engineer.

**B. Payment**

All work performed and measured as provided in paragraph 1.08.A will be paid for as "Tie-in to existing waterline" of size installed at the unit price bid per each, which said price shall be full compensation for tie-ing in to waterlines as specified in Section 02510.

**1.09 FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY - (ITEM 16)**

**A. Measurement**

The work will be measured by the actual number of fire hydrant assemblies of size installed which are included on the Drawings or installed as directed by the Engineer.

**B. Payment**

All work performed and measured as provided in paragraph 1.09.A will be paid for as "Furnish and Install Fire Hydrant Assembly" of size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing fire hydrant assemblies as specified in Section 02513.

**1.10 FURNISH AND INSTALL DUCTILE IRON FITTINGS - (ITEMS 17 AND A1-4)**

**A. Measurement**

The work will be measured by the actual weight (per ton) of ductile iron fittings installed which are required for the waterline installation shown on the drawings or installed as directed by the Engineer.

**B. Payment**

All work performed and measured as provided in paragraph 1.10.A will be paid for as "Furnish and Install Ductile Iron Fittings" at the unit price bid per ton, which said price shall be full compensation for furnishing and installing ductile iron fittings as specified in Section 02510.

**1.11 DRY BORE STEEL CASING - (ITEMS 18-19)**

**A. Measurement**

The work will be measured by the actual length (linear foot) of dry bore of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from end to end of steel casing.

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B. Payment

All work performed and measured as provided in paragraph 1.11.A will be paid for as "Dry Bore Steel Casing" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for dry boring as specified in Section 02445.

1.12 **DIRECTIONAL BORE FOR P.E. WATERLINE - (ITEM 20)**

A. Measurement

The work will be measured by the actual length (linear foot) of directional bore of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from the beginning of the bore hole to the end of the bore hole.

B. Payment

All work performed and measured as provided in paragraph 1.12.A will be paid for as "Directional Bore for Waterline" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for directional bore as specified in Section 02510.

1.13 **PLUG WATERLINE - (ITEMS 21-24)**

A. Measurement

The work will be measured by the actual number of waterlines plugged of size which are included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.13.A will be paid for as "Plug Waterlines" of size plugged at the unit price per each, which said price shall be full compensation for plugging waterlines as called for in the plans.

1.14 **REHABILITATE GROUND STORAGE TANK - (ITEM 25)**

A. Measurement

The work will be measured by lump sum for rehabilitation of ground storage tank as called for on the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.14.A will be paid for as "Rehabilitate Ground Storage Tank" at the lump sum price, which said price shall be full compensation for rehabilitation of ground storage tank as specified in Section 09970 and as called for on the Drawings.

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**SECTION 01025 (WD) - MEASUREMENT AND PAYMENT**

**1.15 DISINFECT GROUND STORAGE TANK - (ITEM 26)**

**A. Measurement**

The work will be measured by lump sum for disinfection of ground storage tank as called for on the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

**B. Payment**

All work performed and measured as provided under Paragraph 1.15.A will be paid for as "Disinfect Ground Storage Tank" at the lump sum price, which said price shall be full compensation for disinfection of ground storage tank.

**1.16 LABOR AND EQUIPMENT TO REMOVE EXISTING WELL DISCHARGE PIPING AND REPLACE WITH NEW PIPING - (ITEM A1-5)**

**A. Measurement**

The work will be measured by lump sum for labor to remove and replace well discharge piping as called for on the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

**B. Payment**

All work performed and measured as provided under Paragraph 1.16.A will be paid for as "Labor to Remove Existing Well Discharge Piping and Replace with New Piping" at the lump sum price, which said price shall be full compensation for labor to remove and replace existing well discharge piping.

**1.17 FLOWABLE BILL - (ITEMS 27 AND A1-6)**

**A. Measurement**

The work will be measured by the actual number of cubic yards provided in approved hauling vehicles at point of delivery and placed (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

**B. Payment**

All work performed and measured as provided under Paragraph 1.17.A will be paid for as "Flowable Fill" at the unit price bid, including placement and compaction, which said price shall be full compensation for flowable fill as specified in Sections 02315.

**1.18 LIMESTONE FOR MAINTENANCE - (ITEMS 28 AND A1-7)**

**A. Measurement**

The work will be measured by the actual weight (per ton) of limestone shown on the drawings or installed as directed by the Engineer.

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B. Payment

All work performed and measured as provided in paragraph 1.18.A will be paid for as "Limestone for Maintenance" at the unit price bid per ton, which said price shall be full compensation for limestone as specified in Section 02060.

1.19 ASPHALT PAVEMENT RESTORATION - (ITEM 29)

A. Measurement

The work will be measured by the actual number of square yards of asphaltic pavement placed at the depth specified (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.19.A will be paid for as "Asphalt Pavement Restoration" at the unit price bid, including placement and compaction, which said price shall be full compensation for pavement restoration as specified in Section 02975.

1.20 P.C. CONCRETE PAVEMENT RESTORATION - (ITEM A1-8)

A. Measurement

The work will be measured by the actual number of square yards of P.C. Concrete Pavement placed at the depth specified (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.20.A will be paid for as "P.C. Concrete Pavement Restoration" at the unit price bid, including concrete, reinforcement, joint materials, and finishing, which said price shall be full compensation for concrete pavement restoration as specified in Section 02980.

1.21 TEMPORARY SIGNAGE AND BARRICADES - (ITEMS 30 AND A1-9)

A. Measurement

The work will be measured by lump sum for temporary signage and barricades as called for on the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.21.A will be paid for as "Temporary Signage and Barricades" at the lump sum price, which said price shall be full compensation for temporary signage and barricades as specified in Section 02760.

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1.22 **MOBILIZATION - (ITEMS 31 AND A1-10)**

A. Measurement

The work will be measured by lump sum for mobilization.

B. Payment

All work performed and measured as provided under Paragraph 1.22.A will be paid for as "Mobilization" at the lump sum price in accordance with the schedule of Table 1 below up to a maximum of 10 percent of the original total contract amount, including this item, which said price shall be full compensation for mobilization as specified in Section 01505.

<b>TABLE 1</b> <b>MOBILIZATION PAYMENT SCHEDULE</b>	
<b>PERCENT OF TOTAL CONTRACT AMOUNT EARNED</b>	<b>ALLOWABLE PERCENT OF THE LUMP SUM PRICE FOR MOBILIZATION</b>
1 <sup>ST</sup> Partial Estimate	25
10	50
25	75
50	100
No payment adjustments will be made for this item due to changes in the work.	

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**





**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01030 - ALTERNATES/ALTERNATIVES**

**PART 1 - GENERAL**

1.01 **SCOPE**

- A. This Section identifies each alternate/alternative allowance on major equipment and/or material by the Engineer.

1.02 **BIDDING REQUIREMENTS**

- A. In the bid form, the bidder shall identify the type of material or manufacturer of equipment proposed for this project in the blanks provided.
- B. When required by these Specifications, pre-qualifications of certain material and/or equipment will be required during the bidding phase of the project. A list of pre-qualified material and/or equipment shall be stated in Paragraph III of the Bid Qualifications.
- C. The pre-qualification process requires all data and information of material and/or equipment not listed in the Technical Specification but desiring consideration for this project be submitted to the Engineer, fifteen (15) days prior to the receipt of bids. No submittals will be considered within fifteen (15) days prior to the receipt of bids.

1.03 **PRE-QUALIFIED MATERIAL OR EQUIPMENT**

- A. If pre-qualified material or equipment is specified, only those items listed in the Specification or Addenda will be permitted to be incorporated into the project.
- B. Those items which are not listed as pre-qualified materials and/or equipment in the Supplementary Conditions shall be submitted for consideration as product substitutions and options as required by Section 01600.

1.04 **APPROVAL OF PRE-QUALIFIED MATERIAL OR EQUIPMENT ALTERNATES/ALTERNATIVES**

- A. If an alternate material and/or equipment is approved by Addendum, the Contractor shall be responsible for providing design calculations and drawing revisions for alternate products which affect the existing design, Specifications and Drawings, including, but not limited to, hydraulics, structural, piping, and electrical. The cost of these revisions shall be paid for by the Contractor. All design changes shall be approved by the Engineer prior to incorporation into the project.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01035 - MODIFICATION PROCEDURES**

**PART 1 - GENERAL**

**1.01    REQUIREMENTS**

- A. Refer to Articles 10, 11 and 12 of the General Conditions with regards to changes in Contract Price and Contract Time.
- B. Promptly implement Change Order procedures.
  - 1. Provide full written data required to evaluate changes.
  - 2. Maintain detailed records of work done on a time and material/force account basis.
  - 3. Provide full documentation to Engineer on request.
- C. Designate in writing the member of Contractor's organization:
  - 1. Who is authorized to accept changes in the work.
  - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the work.
- D. Owner will designate in writing the person who is authorized to execute Change Orders.

**1.02    DOCUMENTATION**

- A. Contractor may initiate a change by submitting a written notice to the Engineer containing:
  - 1. Description of the proposed change.
  - 2. Statement of the reason for making the change.
  - 3. Statement of the effect on the Contract Price and the Contract Time.
  - 4. Statement of the effect on the work of other Contractors.
  - 5. Documentation supporting any change in Contract Price or Contract Time as appropriate and adequate for proper review by the Engineer.
- B. If not required by any U.S. Government Agencies, Change Order form shall be E.J.C.D.C. Form No. C-941 (2002 Edition) or the latest revision thereof. Change Order request shall be within thirty (30) days of the occurrence with the exception of inclement weather as outlined by other Sections of this Specification.

**1.03    CONSTRUCTION CHANGE AUTHORIZATION**

- A. Change Orders will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01035 - MODIFICATION PROCEDURES**

- B. Change Orders must have the Owner's and Contractor's approvals. Change Orders on projects funded in whole or in part by loans or grants from agencies of the U.S. Government must be approved by the respective agency prior to their incorporation into the project.

**1.04 DOCUMENTATION OF PROPOSALS AND CLAIMS**

- A. Contractor shall support proposed lump sum proposal pricing and each unit price which has not previously been established with sufficient substantiating data to allow the Engineer to evaluate the pricing.
- B. Contractor shall provide the following data to support proposed time and pricing of both lump sum proposals, unit pricing, and time and material proposals:
  - 1. Labor required.
  - 2. Equipment required.
  - 3. Products required.
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required.
  - 4. Taxes, insurance and bonds.
  - 5. Credit for work deleted from Contract, similarly documented.
  - 6. Overhead and profit.
  - 7. Justification for any change in Contract Time.
- C. In addition, Contractor shall support each claim for work done on a time and material/force account basis with the following additional information:
  - 1. Dates and times work was performed and by whom.
  - 2. Time record, summary of hours worked, and hourly rates paid.
  - 3. Receipts and invoices for:
    - a. Equipment used, listing dates and times of use.
    - b. Products used, listing quantities purchased.
    - c. Subcontractors used, showing the same data as above.

**1.05 PREPARATION OF CHANGE ORDERS**

- A. Engineer will prepare each Change Order.
- B. Form: E.J.C.D.C. No. C-941 (2002 Edition)

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**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01035 - MODIFICATION PROCEDURES**

- C. Change Order will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Price and in the Contract Time.

**1.06 LUMP SUM/FIXED PRICE CHANGE ORDER**

- A. Engineer initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor or requests from Owner or both.
- B. Once Engineer has completed and signed the form, all copies will be sent to Contractor for execution. The Contractor shall execute the change order documents and return it to the Engineer within seven (7) days. After execution by Contractor, all copies will be sent to the Owner for execution. Engineer will make distribution of executed copies.

**1.07 UNIT PRICE CHANGE ORDERS**

- A. Content of Change Orders will be based on either:
  - 1. Engineer's definition of the scope of the required changes.
  - 2. Contractor's proposal for a change, as recommended by Engineer.
  - 3. Survey of complete work.
- B. The amounts of the unit prices to be:
  - 1. Those stated in the Contract Bid Form.
  - 2. Those mutually agreed upon between Owner and Contractor.

**1.08 CORRELATION WITH CONTRACTOR'S SUBMITTALS**

- A. Contractor shall revise monthly the Schedule of Values and Application for Payment forms to record each Change Order as a separate item of work and to record the adjusted Contract Price.
- B. Contractor shall revise monthly the Construction Schedule to reflect each change in Contract Time, to include subschedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, the Contractor shall enter pertinent changes in Record Documents.

**1.09 PROCEEDINGS WHEN CONTRACTOR DOES NOT EXECUTE THE CHANGE ORDERS**

It is anticipated that at the time of submittal to the Contractor, negotiations will have been completed with all parties agreeing to the change(s) in the work, change in Contract Price, and change in Contract Time. In the event that no agreement can be reached and the Contractor fails to execute the Change Order within the specified time limit, the Owner may issue a Change Order without signature of the Contractor establishing a change to Contract Price or Contract Time in accordance with the provisions of Article 10 of the General Conditions. The Contractor will then be paid or assessed time on the basis of the Change Order for the change in work with the Contractor not

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relinquishing his rights to submit a claim in accordance with Articles 11 and 12 of the General Conditions.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01041 - PROJECT COORDINATION**

**PART 1 - GENERAL**

**1.01    WORK PROGRESS**

The Contractor shall furnish personnel and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such personnel appear to the Engineer to be inefficient, inappropriate, or insufficient for performing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the personnel and equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to perform the work at the specified quality and rate of progress.

**1.02    PRIVATE LAND**

- A. The Contractor shall be aware that his work will be performed adjacent to private property. The Contractor shall notify all property owners adjacent to and along the route of construction by means of either a printed circular or form letter of the general details of the construction. The letter shall also include names and telephone numbers for key project personnel so that property owners can report problems. These contact telephone numbers shall be given so that appropriate personnel can be contacted twenty-four (24) hours a day, seven (7) days a week.
- B. The Contractor shall not enter or occupy private land outside the Owner's land, rights-of-way, or servitudes except by written permission of both the Owner and the owner of the private land. Such permission shall be obtained by and at the expense of the Contractor and at no additional cost to the Owner.
- C. Owners of adjacent private land shall be inconvenienced as little as possible by the construction work. Where possible, the Contractor shall maintain access across or over the work to adjacent property. At locations where an adjacent property has more than one (1) access point for vehicular traffic, such as paved or aggregate surfaced driveways, grassed ramps, gaps, etc., the Contractor shall schedule his work so that at least one (1) access point is usable by the property owner, his associates, or his clientele in the case where the adjacent property is a business establishment.

**1.03    WORK LOCATIONS**

Structures and pipelines shall be located substantially as indicated on the Drawings, but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

**1.04    OPEN EXCAVATIONS**

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights, and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by the public, Owner's and Engineer's personnel, and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open trench,

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prohibiting the stacking of excavated material in the street, and requiring that the excavations shall not remain open overnight.

- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.

**1.05    TEST PITS**

Test pits for the purpose of locating underground utilities or structures which may interfere with installation of the work shall be excavated in advance of the work and backfilled by the Contractor. Test pits shall be backfilled immediately after their purpose has been satisfied and maintained in a manner satisfactory to the Engineer. The costs for such test pits, except as provided for in the Bid Form, shall be included in the cost of the work for which the test pits benefit. Backfill shall comply with the Specifications for backfill of pipe. The maximum number of test pits to be excavated shall be equivalent to two (2) for each structure and one (1) for each two hundred linear feet (200') of pipeline.

**1.06    MAINTENANCE OF TRAFFIC**

- A. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Contractor shall provide for normal traffic flow during extended construction stoppage, regardless of the cause.
- B. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operation causes traffic safety hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other measures for safety satisfactory to the Engineer. All excavations shall be covered, backfilled, or protected as directed by the Engineer, fully delineated at night when the work is not in progress.
- C. Detours around construction areas will be subject to the approval of the Owner and the Engineer. Where detours are permitted the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the Contractor shall expedite construction operations. The periods when traffic may be detoured will be strictly controlled by the Owner.

**1.07    CARE AND PROTECTION OF PROPERTY**

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the Engineer.
- B. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the best modern practice.
- C. Along the location of this work, all fences, walks, brushes, trees, shrubbery, and other physical features shall be protected and restored in a thoroughly workmanlike manner.



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Fences and other features removed by the Contractor shall be replaced in the location indicated by the Engineer as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regraded and sodded.

- D. Trees close to the work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the Engineer. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials.
- E. The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the Contract, and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Proposal.
- F. Where fences must be removed for construction purposes or access, they shall immediately be reconstructed or replaced. The Contractor shall provide adequate temporary fence and gates as necessary to contain or restrict domestic farm animals within their proper areas during the life of this Contract and shall provide reasonably safe and convenient means of access where and when required.

**1.08 MAINTENANCE OF FLOW**

The Contractor shall maintain the flow of sewers, drains, and water courses interrupted during the progress of the work, including complete pumped bypass systems where necessary. The Contractor shall immediately remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer well in advance of the interruption of any flow. All temporary works installed for flow maintenance shall be removed when the permanent work is finished and the areas cleaned and restored to good condition. Pavement removal and replacement which, in the opinion of the Contractor, is necessitated by placement of temporary flow control facilities, shall be considered as an item for convenience to the Contractor. Such costs for pavement removal and replacement shall, therefore, be born by the Contractor at his own cost as required for other flow control measures. The intent of this Specification is that pavement removal be limited to the least amount possible and the Contractor shall investigate alternative methods for flow control which require the least amount of pavement removal.

**1.09 CONNECTION TO WORK BY OTHERS**

It is anticipated that pipeline construction by others may occur at the same time and in the same areas as work being done under this Contract. The Contractor will, therefore, conduct his operations as follows:

**A. Sewer Lines**

- 1. If shown on the Drawings, sewers built by others may be connected to sewers and/or manholes constructed under this Contract.
- 2. If the sewers and/or manhole by others have already been constructed, the manholes and/or sewers under this Contract shall be built at the exact locations of the connection as actually exist in the field. The Contractor is responsible for pot holing the connection points in advance of constructing manholes and/or sewers under this Contract to ensure the proper alignment at the connection point.

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3. If the sewers and/or manholes by others have not been constructed, the sewers shall be built at the exact locations of the connection as shown on the Drawings and plugged.

**B. Force Mains and Waterline**

1. Where shown on the Drawings, force mains constructed under this Contract shall be connected to pipelines to be built by others. All connections at the Contract limits of force mains shall be terminated with a standard mechanical joint bell end and plugged with a standard mechanical joint plug.
2. If the force main or waterlines by others have already been constructed, the force mains built under this Contract will be connected to the force mains constructed by others by removing all necessary plugs and making the connection(s). The Contractor shall pot hole connection points in advance of development of laying schedules for all pipe size of sixteen inches (16") and larger to ensure the proper alignment at the connection point. Upon completion of the tie-in connection(s), Contractor shall deliver all removed plugs to the Owner's facility.
3. If the force mains or waterlines have not been constructed by others, the force mains or waterlines under this Contract shall be laid to the required line and grade, terminated with a plug at the location of the connection indicated on the Drawings, backfilled and marked with a stake.
4. The notation on the Drawings at tie-in points states that the Contractor shall tie to facilities constructed by others or provide a plug. The intent of this instruction is that, if a tie-in cannot be made, the Contractor shall furnish and install a plug at the terminal end as defined above.

**1.10 PROTECTION OF CONSTRUCTION AND EQUIPMENT**

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed. All portions injured shall be reconstructed by the Contractor at his own expense.
- B. All structures shall be protected in a manner approved by the Engineer. Should any of the floors or other parts of the structures become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor at no additional cost to the Owner and to the satisfaction of the Engineer. Special attention is directed to substructure bracing requirements, described in other sections. If, in the final inspection of the work, any defects, faults or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein for at least the guarantee period described in the Contract.
- C. The Contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the Owner.
- D. After the buildings or structures have been made weathertight and ready for the installation of pumps, motors, piping and other equipment, the interior temperature shall be maintained at a minimum temperature of 50° F., and thereafter until the completion of the contract, temperature shall not be allowed to drop below 50° F.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01041 - PROJECT COORDINATION**

1.11 **CLEANUP DURING CONSTRUCTION**

During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

1.12 **COOPERATION WITHIN THIS CONTRACT**

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling, and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the Engineer.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01046 - MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT**

**PART 1 - GENERAL**

**1.01    SCOPE OF WORK**

Furnish all labor, materials, equipment, and incidentals required to modify, alter and/or convert existing structures as shown or specified and as required for the installation of new mechanical equipment, pumping units, piping, and appurtenances. Work shall be performed within the requirements of Special Project Procedures in Section 01100 and required Progress Schedules in Section 01310. Existing pumping units, piping, and equipment shall be removed and dismantled as necessary for the performance of structural alterations in accordance with the requirements herein specified.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

**3.01    GENERAL**

- A. The Contractor shall dismantle and remove all existing pumping units, equipment, piping, electrical conduit and wiring, electrical panels, and other appurtenances required for the completion of the work. Where called for or required, he shall cut existing pipelines for the purpose of making connections thereto.
  - 1. Anchor bolts for equipment and structural steel removed shall be cut off one inch (1") below the concrete surface. Surface shall be finished as specified in Division 3.
- B. No existing structure, equipment, or appurtenance shall be shifted, cut, removed, or otherwise altered except with the express approval of and to the extent approved by the Engineer.
- C. When removing materials or portions of existing structures and when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work and not to damage the structures or contents by falling or flying debris.
- D. Materials and equipment removed in the course of making alterations and additions shall remain the property of the Owner, except that items not salvageable, as determined by the Engineer and the Owner shall become the property of the Contractor to be disposed of by him off the site of the work at his own place of disposal. Operating equipment shall be thoroughly cleaned and then lubricated and greased for protection during prolonged storage as specified in other Sections.
- E. All work of altering existing structures shall be done at such time and in such manner as will comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.
- F. All workmanship and new materials involved in constructing the alterations shall conform to the Specifications for the classes of work insofar as such Specifications are applicable.
- G. All cutting of existing masonry or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective Section of these Specifications

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01046 - MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT**

covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the Engineer.

- H. Where holes in existing masonry are required to be sealed, unless otherwise herein specified, they shall be sealed with cement mortar or concrete. The sides of the openings shall be provided with keyed joints and shall be suitably roughened to furnish a good bond and make a watertight joint. All loose or unsound material adjacent to the opening shall be removed, and if necessary, replaced with new material. The method of placing the mortar seal shall provide a suitable means of releasing entrapped air.
- I. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
- J. Nonshrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.
- K. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, he shall weld bends, flanges, or provide dresser couplings, all as required.
- L. The Contractor shall provide flumes, hoses, piping, etc., to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of wastewater, water, or other liquids, all as required in the performance of the work under this Contract.

**3.02 WALL PENETRATIONS**

Unless otherwise shown on the Drawings or specified herein, wall penetrations for pipes or conduits shall be made using a modular sealing strip such as the Link-Seal as manufactured by Thunderline Corporation, Wayne, Michigan, or approved equal. Wall sleeves for use with the sealing strips shall be Schedule 40, galvanized steel pipe. A suitable water stop approximately one-fourth inch ( $\frac{1}{4}$ " thick by two-inch (2") wide shall be welded to the sleeve completely around the periphery of the pipe. The use of such sealing strips shall not relieve the Contractor of his responsibility of providing a guaranteed water tight seal. Wall penetrations will be permitted only with the expressed approval of the Engineer. Wall seals exposed to sewage or sewage gasses shall be rated for corrosive service.

**3.03 CLEANING EXISTING STRUCTURES**

- A. After dewatering and before commencing work on each structure, the Contractor shall remove and dispose of, away from the site and at a properly permitted disposal site, any sand, sludge, and other solids remaining in such structure.
- B. The use of explosives will not be permitted to complete any work under this Contract. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01048 - UTILITIES COORDINATION**

**PART 1 - GENERAL**

1.01 UTILITIES

Utilities for the purpose of these Specifications shall be considered as including, but not limited to: pipelines, conduits, cables, transmission lines and appurtenances of Public Utilities and those of Special Utility Districts, Cities or Towns, businesses or individuals solely for their own use or for use of their tenants; and storm drains, sanitary sewers, street lighting, traffic signal and fire alarm systems, except those owned or under the direct control of the Owner.

1.02 UNDERGROUND INSTALLATIONS

Existing underground pipelines and utilities are indicated on the Drawings only to the extent such information was made available to or discovered by Engineer in preparing Drawings. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness thereof is expressly disclaimed by the Owner and the Engineer.

1.03 UTILITIES LOCATED IN OWNER'S RIGHT-OF-WAY

Unless otherwise provided or excepted herein, the removal, adjusting, relocation, or replacement of utility structures or facilities within the Owner's right-of-way which may be necessary for construction of the work being done, in accordance with these Contract Documents, shall be at the expense of the owners of the utilities.

While it is the utility owner's responsibility to perform any work and bear any expense involved in relocations and adjustments within Owner's right-of-way, it shall be the Contractor's responsibility to protect and maintain those utilities which, in the opinion of the Engineer, do not need to be disturbed in order to accomplish the work required by the Contract.

1.04 RELOCATIONS OF EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES, CABLE TV LINES, AND WATER LINES

The Contractor shall notify the proper authority of the utility involved when relocation of these lines is required. The Contractor shall coordinate all work by the utility so that the progress of construction will not be hampered.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

3.01 GENERAL

The Contractor, when the Notice to Proceed is received, shall notify the owners of utilities affected by the work, the approximate date upon which he will begin work, and shall submit a progress schedule of the proposed work. This shall be deemed sufficient notice if the project progresses according to the progress schedule submitted with the notification. If changes in the schedule of the work occur, the Contractor shall appraise both the owner of the utility affected, and the Engineer so that adjustments in the work schedule of the utility can be made. The Contractor shall be responsible for damages to the utility facility and construction delays resulting from failure to notify the utility and the Engineer of changes in procedure or location.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01048 - UTILITIES COORDINATION**

**3.02 UTILITY CROSSINGS**

It is intended that wherever existing utilities such as water, gas, telephone, electrical, drains, or other service lines must be crossed by a force main or waterline, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated on the Drawings. However, when in the opinion of the Owner or Engineer this procedure is not feasible, he may direct the use of fittings for a utility crossing as detailed on the Drawings.

**3.03 TEST PITS**

- A. Test pits for the purpose of locating underground pipelines or structures shall be excavated prior to development of laying schedules for all pipe sizes of sixteen inches (16") and larger. The test pits shall be for the purpose of accurately locating underground utilities and structures both horizontally and vertically. Underground utilities' and structures' locations shall be referenced to the project baseline by station and offset distance, left or right and measured perpendicular to the baseline, along with the elevation of the top of the utility or structure. The data shall also include the size and depth or diameter of the utility or structure.
- B. This procedure shall be completed for the entire project and all underground utilities and structures shall be located as described above in conformance with the requirements of the field engineering provision of Section 01050. The data collected shall be used to develop a pipe laying schedule with accurately depicts the location of underground utilities and structures and details both horizontal and vertical deflections and adjustments of the proposed force main pipe required to eliminate conflicts. This laying schedule shall be submitted to the Engineer for approval prior to fabrication of the pipe.
- C. Test pits shall be excavated and backfilled prior to both the preparation of the pipe laying schedule and the commencement of construction. The test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer. The costs of the test pit excavations shall be included in the various bid items for which the test pits benefit, except as otherwise allowed by Section 01025, Measurement and Payment.

**3.04 PROTECTION OF EXISTING UTILITIES**

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the Owner.
- B. The Contractor shall assume full responsibility for the protection of all utilities, public and private, including poles, services to buildings, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by him at his expense.

The protection and preservation of utility facilities which are located within the right-of-way, but outside the normal limits of construction, as determined by the Engineer, shall be the responsibility of the Contractor. The Contractor shall be responsible for all damage to utilities which are due to his negligence.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01048 - UTILITIES COORDINATION**

- C. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the Owner is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the unit prices bids, if applicable, or as extra work under Article 10 of the General Conditions. If relocation of a privately owned utility is required, the Contractor will notify the utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Owner and utility and shall have no claim for delay due to such relocation.
- E. The Contractor shall notify public and private utility companies in writing at least two (2), but not more than five (5) full days (excluding Saturdays, Sundays, and legal holidays) before excavating near their utilities.
- F. The Owner will not be responsible for any delay or inconvenience to the Contractor in carrying out the work resulting from the existence, removal or adjustment of any public utility. Additional costs incurred as a result thereof shall be the expense of the Contractor.

**3.05 UTILITIES TO BE ADJUSTED**

- A. The owners of utility facilities which required relocation, removal, adjustment or replacement shall, if possible and feasible, perform this work prior to the commencement of the Contractor's work. Where utility work must be done in conjunction with the Contractor's work on the project or in conjunction with the work of other utilities, arrangements for when, how and where the operation is to proceed shall be worked out among the parties concerned. If disputes arise, the Engineer shall decide the course of action to be taken.

**3.06 UTILITIES CONFLICTING WITH OPERATIONS**

- A. Those utility facilities which do not conflict with the improvement, but which are obstructions to the operations required for installation or which present unusual difficulty due to their close proximity to the area of the operations shall be located with certainty by the owners of the utility prior to the arrival of the Contractor's operation which would be hindered by the utility facility. The Contractor is required to preserve the utility facility in place without damage and shall be responsible for damages sustained, if the utility owner has located the facility by exposing it to the view of the Contractor or has otherwise shown the Contractor, with certainty, the location of the facility. Any other arrangements that the Contractor may make with a utility owner as a substitute for the requirements of this Section shall require the approval of the Engineer, in writing.

**3.07 MISLOCATED UTILITIES**

- A. The owner of a utility shall be wholly responsible for the proper location of his facilities which are affected by construction work performed according to these Specifications. Improperly located or mislocated facilities which are damaged during construction shall be the responsibility of the utility, providing proper notification has been given.

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01050 - FIELD ENGINEERING**

**PART 1 - GENERAL**

**1.01    REQUIREMENTS INCLUDED**

- A. The Contractor shall provide and pay for field engineering services for:
  - 1. Survey work required in execution of work.
  - 2. Civil, structural, or other professional engineering services specified or required to execute the Contractor's construction method.
- B. The method of field staking for the construction of the work shall be at the option of the Contractor. The Owner shall provide the engineering surveys to establish reference points which in his judgement are necessary to enable the Contractor to proceed with his work.
- C. The accuracy of any method of staking shall be the responsibility of the Contractor. All engineering for vertical and horizontal control shall be the responsibility of the Contractor.
- D. The Contractor shall be held responsible for the preservation of all stakes and marks. If any stakes or marks are carelessly or willfully disturbed by the Contractor, the Contractor shall not proceed with any work until he has reestablished such points, marks, lines and elevations as may be necessary for the prosecution of the work.
- E. The Contractor shall retain the services of a competent surveyor, registered in the State of Louisiana, to layout the work and maintain a survey during construction. The Contractor shall be solely responsible for proper location of the work.

**1.02    SURVEY REFERENCE POINTS**

Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.

- 1. Make no changes or relocations without prior written notice to the Engineer.
- 2. Report to the Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
- 3. Require surveyor to replace control points which may be lost or destroyed. Establish replacements based on original survey control.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01050 - FIELD ENGINEERING**

1.03 **PROJECT SURVEY REQUIREMENTS**

- A. Establish temporary bench marks as needed, referenced to data established by survey control points. Record locations, with horizontal and vertical data, on Record Drawings.
- B. Establish lines and levels, and locate and lay out, by instrumentation and similar appropriate means:
  - 1. Site improvements, including utility slopes and invert elevations.
  - 2. Batter boards for structures.
  - 3. Controlling lines and levels required for mechanical and electrical trades.
- C. From time to time, verify layouts by same methods.
- D. Establish all lines and grades prior to construction of pipe work at one hundred foot (100') increments.

1.04 **RECORDS**

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. At Contract closeout, submit a survey of installation of structures and pipelines at the same scale as the Engineer's Drawings indicating elevations and stationing at one hundred foot (100') increments and at all valve and fitting locations when applicable.

1.05 **SUBMITTALS**

- A. On request of the Engineer, submit documentation to verify accuracy of field engineering work including cut sheets when applicable.
- B. Submit Drawings showing locations of all pipes and structures constructed. This Drawing shall be included with the Record Drawings.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01060 - REGULATORY REQUIREMENTS**

**PART 1 - GENERAL**

**1.01     REQUIREMENTS INCLUDED**

Abbreviations and acronyms used in Contract Documents to identify reference standards are illustrated in Section 01092 - Abbreviations.

**1.02     QUALITY ASSURANCE**

**A.   Application**

When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.

**B.   Publication Date**

The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

**C.   Merchantable timber must be harvested and sold commercially to satisfy requirements of the State of Louisiana Forestry Commission.**

**D.   Siltation and sedimentation control shall be practiced to satisfy requirements of the State of Louisiana Department of Wildlife and Fisheries.**

**E.   Detailed requirements such as fertilizer and seeding types, application rates, and seasons shall be subject to modification by the local Soil and Water Conservation District.**

**1.03     FINANCING BY GOVERNMENTAL AGENCIES**

**A.   When projects are funded by Federal or State agencies, the regulations and rules of the funding agency shall be strictly adhered to.**

**B.   Contractor shall secure from the Owner or the funding agency the regulation applicable to his work and organization including all labor requirements.**

**C.   The Contractor shall be responsible to comply with all rules and regulations as outlined by the funding agency.**

**1.04     COMPLIANCE WITH REGULATIONS**

**A.   The Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the work, the materials used in the work, or the conduct of the work. If any discrepancy or inconsistency should be discovered in this Contract in relation to any such law, ordinance, code, order, or regulation, the Contractor shall report the same in writing to the Engineer. Any particular law or regulation specified or referred to elsewhere in these Specifications shall not in any way limit the obligation of the Contractor to comply with all other provisions of Federal, State and local laws and regulations.**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01060 - REGULATORY REQUIREMENTS**

- B. The Contractor shall be responsible for securing all permits and licenses required and shall pay all fees required to complete the job.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01091 - REFERENCE STANDARDS**

**PART 1 - GENERAL**

1.01 UNIT OF MEASURE

- A. The standard units of measure shall be the inch-pound as defined by the U.S. National Bureau of Standards. Metric conversion shall be in accordance with ASTM E380.

1.02 STANDARD STATUS

- A. All Standards referred to shall be current with latest addenda and supplements as of the date of the Contract Documents.
- B. All work shall comply with all governing building and safety laws, ordinances and regulations relating to building and public health and safety laws having jurisdiction.

1.03 REFERENCE MATERIAL

- A. All reference material utilized in the formation of these specifications can be obtained from local libraries or from the Engineer at the costs of reproduction.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**





**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

**PART 1 - GENERAL**

1.01 **DESCRIPTION**

- A. The following standards are referenced in the Contract Documents. The Contractor shall obtain copies of reference standards directly from the publication source when needed for proper performance of work or when required for submittal by Contract Documents.

AA	Aluminum Association 818 Connecticut Ave. NW Washington, DC 20006	202/862-5100
AABC	Associated Air Balance Council 1518 K Street NW, Suite 503 Washington, DC 20005	202/737-0202
AAMA	American Architectural Manufacturer's Association 2700 River Road, Suite 118 Des Plaines, IL 60018	312/699-7310
AAN	American Association of Nurserymen 1250 I Street NW, Suite 500 Washington, DC 20005	202/789-2900
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Suite 225 Washington, DC 20001	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 Research Triangle Park, NC 27709	919/549-8141
ACI	American Concrete Institute P.O. Box 19150 22400 W. Seven Mile Road Detroit, MI 48219	313/532-2600
ACIL	American Council of Independent Laboratories 1725 K Street NW Washington, DC 20006	202/887-5872
ACPA	American Concrete Pipe Association 8320 Old Courthouse Road, Suite 201 Vienna, VA 22180	703/821-1990
ADC	Air Diffusion Council 230 N. Michigan Ave., Suite 1200 Chicago, IL 60601	312/372-9800

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

AGA	American Gas Association 1515 Wilson Blvd. Arlington, VA 22209	703/841-8400
AGMA	American Gear Manufacturers Association 1500 King Street, Suite 201 Alexandria, VA 22314	703/684-0211
AHA	American Hardboard Association 887B Wilmette Road Palatine, IL 60067	312/934-8800
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740-1802	301/277-4258
AIA	American Institute of Architects 1735 New York Ave. NW Washington, DC 20006	202/626-7300
A.I.A.	American Insurance Association 85 John Street New York, NY 10038	212/669-0400
AIHA	American Industrial Hygiene Association 475 Wolf Ledges Parkway Akron, OH 44311	216/762-7294
AISC	American Institute of Steel Construction 400 N. Michigan Ave., 8th Floor Chicago, IL 60611	312/670-2400
AISI	American Iron and Steel Institute 1000 Sixteenth Street NW Washington, DC 20036	202/452-7100
AITC	American Institute of Timber Construction 333 W. Hampden Ave. Englewood, CO 80110	303/761-3212
ALI	Associated Laboratories Eight Brush Street Pontiac, MI 48053	313/335-6114
ALSC	American Lumber Standards Committee P.O. Box 210 Germantown, MD 20874	301/972-1700
AMCA	Air Movement and Control Association 30 W. University Drive Arlington Heights, IL 60004	312/394-0150

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

ANSI	American National Standards Institute 1430 Broadway New York, NY 10018	212/354-3300
APA	American Plywood Association P.O. Box 11700 Tacoma, WA 98411	206/565-6600
A.P.A.	American Parquet Association 1650 Union National Plaza Little Rock, AR 72201	501/375-5561
API	American Petroleum Institute 1220 L Street NW Washington, DC 20005	202/682-8000
ARI	Air Conditioning and Refrigeration Institute 1501 Wilson Blvd. Arlington, VA 22209	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association 6288 Montrose Road Rockville, MD 20852	301/231-9050
ASA	Acoustical Society of America 335 East 45th Street New York, NY 10017	516/349-7800
ASC	Adhesive and Sealant Council 1500 Wilson Blvd., Suite 515 Arlington, VA 22209	703/841-1112
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017	800/548-ASCE
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle NE Atlanta, GA 30329	404/636-8400
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017	212/705-7722
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362	805/495-7120
ASSE	American Society of Sanitary Engineering P.O. Box 40362 Bay Village, OH 44140	216/835-3040

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

ASTM	American Society for Testing & Materials 655 Fifteenth Street NW Washington, DC 20005 1916 Race Street Philadelphia, PA 19103	202/639-4025 215/299-5400
AWI	Architectural Woodwork Institute 2310 S. Walter Reed Drive Arlington, VA 22206	703/671-9100
AWPA	American Wood Preservers' Association P.O. Box 849 Stevensville, MD 21666	301/643-4163
AWPB	American Wood Preservers' Bureau P.O. Box 6058 2772 S. Randolph Street Arlington, VA 22206	703/931-8180
AWS	American Welding Society P.O. Box 351040 550 Le Jeune Road NW Miami, FL 33135	800/443-9353
AWWA	American Water Works Association 6666 W. Quincy Ave. Denver, CO 80235	303/794-7711
BANC	Brick Association of North Carolina P.O. Box 13290 Greensboro, NC 27415	919-273-5566
BHMA	Builders' Hardware Manufacturers Association 60 East 42nd St., Room 511 New York, NY 10165	212/682-8142
BIA	Brick Institute of America 11490 Commerce Park Drive, Suite 300 Reston, VA 22091	703/620-0010
BIFMA	Business and Institutional Furniture Manufacturers Association 2335 Burton Street SE Grand Rapids, MI 49506	616/243-1681
CAUS	Color Association of the United States 343 Lexington Avenue New York, NY 10016	212/683-9531

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

CAGI	Compressed Air and Gas Institute c/o Thomas Associates, Inc. 1230 Keith Building Cleveland, OH 44115	216/241-7333
CBM	Certified Ballast Manufacturers Association Hanna Building, Suite 772 1422 Euclid Avenue Cleveland, OH 44115	216/241-0711
CDA	Copper Development Association Box 1840, Greenwich Office Park 2 Greenwich, CT 06836	203/625-8210
CGA	Compressed Gas Association 1235 Jefferson Davis Highway Arlington, VA 22202	703/979-0900
CISPI	Cast Iron Soil Pipe Institute 1499 Chain Bridge Road, Suite 203 McLean, VA 22101	703/827-9177
CLFMI	Chain Link Fence Manufacturers Institute 1776 Mass Avenue N.W. Suite 500 Washington, DC 20036	202/659-3537
CLPA	California Lathing and Plastering Association 25332 Narbonne, Suite 170 Lomita, CA 90717	213/539-6080
CRI	Carpet and Rug Institute Box 2048 Dalton, GA 30720	404/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195	312/490-1700
CTI	Ceramic Tile Institute of America 700 North Virgil Avenue Los Angeles, CA 90029	213/660-1911
DHI	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102	703/556/3990
DIPRA	Ductile Iron Pipe Research Association 245 Rivercase Parkway E, Suite 100 Birmingham, AL 35244	205/988-9870

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

DLPA	Decorative Laminate Products Association (Formerly the National Assoc. of Plastic Fabricators) 600 South Federal Street, Suite 400 Chicago, IL 60605	312/345-1600
ECSA	Exchange Carriers Standards Association Four Century Drive, 3rd Floor Parsippany, NJ 07054	201/538-6111
EIA	Electronic Industries Association 2001 Eye Street NW Washington, DC 20006	202/457-4900
EIMA	Exterior Insulation Manufacturers Association P.O. Box 75037 Washington, DC 20013	202/783-6582
ETL	ETL Testing Laboratories, Inc. P.O. Box 2040 Route 11, Industrial Park Cortland, NY 13045	604/753-6711
FCI	Fluid Controls Institute P.O. Box 9036 Morristown, NJ 07960	201/829-0990
FGMA	Flat Glass Marketing Association White Lakes Professional Building 3310 Harrison Topeka, KS 66611	913/266-7013
FM	Factory Mutual Engineering and Research 1151 Boston-Providence Turnpike Norwood, MA 02062	617/762-4300
FTI	Facing Tile Institute c/o Box 8880 Canton, OH 44711	216/488-1211
GA	Gypsum Association 1603 Orrington Ave. Evanston, IL 60201	312/491-1744
HEI	Heat Exchange Institute c/o Thomas Associates, Inc. 1230 Keith Building Cleveland, OH 44115	216/241-7333
HI	Hydronics Institute P.O. Box 218 35 Russo Place Berkeley Heights, NJ 07922	201/464-8200

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

HMA	Hardwood Manufacturers Association 805 Sterick Building Memphis, TN 38103	901/525-8221
ICEA	Insulated Cable Engineers Association, Inc. P.O. Box P South Yarmouth, MA 02664	617/394-4424
IEC	International Electrotechnical Commission 655 Fifteenth Street NW, Suite 300 Washington, DC 20015	202/639-4090
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th Street New York, NY 10017	212/705-7900
IESN	Alllluminating Engineering Society of North America 345 E. 47th Street New York, NY 10017	212/705-7926
IGCC	Insulating Glass Certification Council Route 11, Industrial Park Cortland, NY 13045	607/753-6711
ILI	Indiana Limestone Institute of America Stone City Bank Building, Suite 400 Bedford, IN 47421	812/275-4426
IMSA	International Municipal Signal Association P.O. Box 8249 Fort Worth, TX 76112	817/429-8638
IRI	Industrial Risk Insurers 85 Woodland Street Hartford, CT 06102	203/520-7300
ISA	Instrument Society of America P.O. Box 12277 67 Alexander Drive Reseach Triangle Park, NC 27709	919/549-8411
LPI	Lightning Protection Institute P.O. Box 458 Harvard, IL 60033	815/943-7211
MBMA	Metal Building Manufacturers Association 1230 Keith Building Cleveland, OH 44115	216/241-7333
MCAA	Mechanical Contractors Associations of America 5410 Grosvenor Lane; Suite 120 Bethesda, MD 20814	301/897-0770

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01092 - ABBREVIATIONS**

MIA	Marble Institute of America 33505 State Street Farmington, MI 48024	313/746-5558
ML/SFAMetal Lath/Steel Framing Association	600 South Federal Street, Suite 400 Chicago, IL 60605	312/346-1600
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park Street NE Vienna, VA 22180	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 221 N. LaSalle Street Chicago, IL 60601	(312) 346-1600
NAPA	National Asphalt Pavement Association Calvert Building, Suite 620 6811 Kenilworth Avenue Riverdale, MD 20737	(301) 779-4880
NAPF	National Association of Plastic Fabricators (Now DLPA)	
NBGQA	National Building Granite Quarries Association c/o H.E. Fletcher Co. West Chelmsford, MA 08163	(617) 251-4031
NBHA	National Builders Hardware Association (Now DHI)	
NCMA	National Concrete Masonry Association P.O. Box 781 Herndon, VA 22070	(301) 435-4900
NCRPM	National Council on Radiation Protection and Measurement 7910 Woodmont Avenue, Suite 1016 Bethesda, MD 20814	(301) 657-2652
NEC	National Electric Code (by NFPA)	
NECA	National Electrical Contractors Association 7315 Wisconsin Ave. Bethesda, MD 20814	(301) 657-3110
NEII	National Elevator Industry, Inc. 630 Third Avenue New York, NY 10016	(212) 986-1545
NEMA	National Electrical Manufacturers Association 2101 L Street NW, Suite 300 Washington, DC 20037	(202) 457-8400



**TECHNICAL SPECIFICATIONS**  
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**SECTION 01092 - ABBREVIATIONS**

NFPA	National Fire Protection Association Batterymarch Park Quincy, MA 02269	(617) 770-3000
N.F.P.A.	National Forest Products Association 1250 Connecticut Ave. NW Washington, DC 20036	(202) 463-2700
NHLA	National Hardwood Lumber Association P.O. Box 34518 Memphis, TN 38184	(901) 377-1818
NKCA	National Kitchen Cabinet Association P.O. Box 6830 Falls Church, VA 22046	(703) 237-7580
NOFMA	National Oak Flooring Manufacturers Association 8 North Third Street 804 Sterick Building, Suite 810 Memphis, TN 38103	(901) 526-5016
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879	(301) 670-0604
NPCA	National Paint and Coatings Association 1500 Rhode Island Avenue NW Washington, DC 20005	(202) 462-6272
NRCA	National Roofing Contractors Association 8600 Bryn Mawr Avenue Chicago, IL 60631	(312) 693-0700
NSF	National Sanitation Foundation P.O. Box 1468; 3475 Plymouth Road Ann Arbor, MI 48106	(313) 769-8010
NSPE	National Society of Professional Engineers 1420 King Street Alexandria, VA 22314	(703) 684-2835
NSSEA	National School Supply and Equipment Association 2020 Fourteenth Street North, Suite 400 Arlington, VA 22201	(703) 524-8819
NTMA	National Terrazzo and Mosaic Association 3166 Des Plaines Ave. Suite 132 Des Plaines, IL 60018	(312) 635-7744
NWMA	National Woodwork Manufacturers Association ( NWWDA)	
NWWDA	National Wood Window & Door Assoc. (Formerly NWMA) 205 West Touchy Avenue Park Ridge, IL 60068	(312) 823-6747

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077	(312) 966-6200
PCI	Prestressed Concrete Institute 201 N. Wells Street Chicago, IL 60606	(312) 346-4071
PDI	Plumbing and Drainage Institute (c/o Austin O. Roche, Jr.) 5342 Boulevard Pl. Indianapolis, IN 46208	(317) 251-5298
PEI	Porcelain Enamel Institute 1111 Nineteenth Street Arlington, VA 22209	(703) 527-5257
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805	(301) 340-8580
RIS	Redwood Inspection Service 591 Redwood Highway, Suite 3100 Mill Valley, CA 94941	(415) 381-1304
RMA	Rubber Manufacturers Association 1400 K Street NW Washington, DC 20005	(202) 682-4800
SAMA	Scientific Apparatus Makers Association 1101 Sixteenth Street NW Washington, DC 20036	(202) 223-1360
SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711	(216) 493-7886
S.D.I.	Steel Door Institute (c/o A.P. Wherry and Associates, Inc.) 712 Lakewood Center North 14600 Detroit Avenue Cleveland, OH 44107	(216) 226-7700
SGCC	Safety Glazing Certification Council Route 11, Industrial Park Cortland, NY 13045	(607) 753-6711
SHLMA Southern Hardwood Lumber Manufacturers Assoc. (Now HMA)		
SIGMA	Sealed Insulating Glass Manufacturers Association 111 E. Wacker Drive Chicago, IL 60601	(312) 644-6610

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01092 - ABBREVIATIONS**

SJI	Steel Joist Institute 1205 48th Street North, Suite A Myrtle Beach, SC 29577	(803) 449-0487
SMACNA	Sheet Metal / Air Conditioning Contractors National Assoc. P.O. Box 70 Merrifield, VA 22116	(703) 790-9890
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504	(904) 434-2611
SPRI	Single Ply Roofing Institute 1800 Pickwick Avenue Glenview, IL 60025	(312) 724-7700
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213	(412) 578-3327
SWI	Steel Window Institute (c/o Thomas Associates, Inc.) 1230 Keith Building Cleveland, OH 44115	(216) 241-7333
TCA	Tile Council of America P.O. Box 326 Princeton, NJ 08542	(609) 921-7050
TIMA	Thermal Insulation Manufacturers Association 7 Kirby Plaza Mt. Kisco, NY 10549	(914) 241-2284
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719	(608) 833-5900
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062	(312) 272-8800
UNI-BELL	Uni-Bell PVC Pipe Association 2655 Villa Creek Drive, Suite 155 Dallas, TX 75234	(214) 243-3902
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97223	(503) 639-0651
WCMA	Wall Covering Manufacturers Association 66 Morris Avenue Springfield, NJ 07081	(201) 379-1100

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01092 - ABBREVIATIONS**

WIC	Woodwork Institute of California P.O. Box 11428 Fresno, CA 93773	(209) 233-9035
WRI	Wire Reinforcement Institute 8361 A Greensboro Drive McLean, VA 22102	(703) 790-9790
WSC	Water Systems Council 221 North LaSalle St. Chicago, IL 60601	(312) 346-1600
WSFI	Wood and Synthetic Flooring Institute 4415 West Harrison Street, Suite 242 C Hillside, IL 60162	(312) 449-2933
WWPA	Western Wood Products Association 1500 Yeon Building Portland, OR 97204	(503) 224-3930
W.W.P.A.	Woven Wire Products Association 2515 N. Nordica Ave. Chicago, IL 60635	(312) 637-1359

- B. Names and titles of federal government standard or specification producing agencies are frequently abbreviated. The following acronyms or abbreviations as referenced in the Contract Documents indicate names of standard or specification producing agencies of the federal government.

CFR	Code of Federal Regulations Available from the Government Printing Office North Capitol Street between G and H Streets NW Washington, DC 20402 (Material is usually first published in the Federal Register)	(202) 783-3238
COE	Corps of Engineers (US Department of the Army) Chief of Engineers-Referral Washington, DC 20314	(202) 693-6456
CPSC	Consumer Product Safety Commission 1111 Eighteenth Street NW Washington, DC 20207	(202) 634-7700
CS	Commercial Standard (U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 377-2000
DOC	Department of Commerce 14th Street and Constitution Avenue NW Washington, DC 20230	(202) 377-2000

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01092 - ABBREVIATIONS**

DOT	Department of Transportation 400 Seventh Street SW Washington, DC 20590	(202) 426-4000
EPA	Environmental Protection Agency 401 M Street SW Washington, DC 20460	(202) 829-3535
FAA	Federal Aviation Administration (U.S. Department of Transportation) 800 Independence Avenue SW Washington, DC 20590	(202) 426-4000
FCC	Federal Communications Commission 1919 M Street NW Washington, DC 20554	(202) 632-7000
FHA	Federal Housing Administration (U.S. Department of Housing and Urban Development) 451 Seventh Street SW Washington, DC 20201	(202) 755-5995
FS	Federal Specification (General Services Administration) Specifications Unit (WFSIS) 7th and D Streets SW Washington, DC 20406	(202) 472-2205 or 472-2140
GSA	General Services Administration F Street and 18th Street NW Washington, DC 20405	(202) 655-4000
LA DOTD	Louisiana Department of Transportation & Development 1201 Capital Access Road Baton Rouge, LA 70804	(504) 379-1200
MIL	Military Standardization Documents (U.S. Department of Defense) Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120-5099	(215) 697-2667
NBS	National Bureau of Standards (U.S. Department of Commerce) Gaithersburg, MD 20234	(301) 921-1000
OSCI	Office of Standards Code and Information National Bureau of Standards Gaithersburg, MD 20899	(301) 975-4029
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) Government Printing Office Washington, DC 20402	(202) 783-3238
PS	Product Standard of NBS	

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01092 - ABBREVIATIONS**

	(U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 783-3238
REA	Rural Electrification Administration (U.S. Department of Agriculture) 14th Street and Independence Avenue SW Washington, DC 20250	(202) 382-1255
USDA	U.S. Department of Agriculture Independence Avenue between 12th and 14th Streets 5W Washington, DC 20250	(202) 447-4929
USPS	U.S. Postal Service 475 L'Enfant Plaza 5W Washington, DC 20260	(202) 245-4000

- C. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. This Section describes special procedures for alterations, preservation, security, hazardous material, and other types of projects demanding unique procedures.

**1.02 SEPARATION BETWEEN SEWER LINES AND WATER LINES**

- A. See Specifications and applicable piping systems specifications. Where the separation between sanitary sewer and water lines is not clearly defined by dimensions on the Drawings, a sewer shall not be closer horizontally than ten feet (10') to a water supply main or service line, except that where the bottom of the water pipe will be at least eighteen inches (18") above the top of the sewer pipe, the horizontal spacing may be a minimum of six feet (6'). Where gravity flow sewers cross above the water lines, the sewer pipe for a distance of ten feet (10') each side of the crossing shall be ductile iron or PVC pipe, without any joint closer horizontally than ten feet (10') to the crossing, or shall be fully encased in concrete. The thickness of the concrete including at the pipe joints shall be no less than four inches (4"). These provisions are regulations of the State Sanitary Code and Ten States Standards. Unless otherwise approved by the Engineer, the locations, lines and grades shown on the Drawings shall not be changed.

**1.03 OPEN WASTEWATER BYPASSING**

- A. Temporary open wastewater bypass discharges shall generally be prohibited. The applicable State Pollution Control Agency and U.S.E.P.A. must approve open wastewater bypassing if the terms of the N.P.D.E.S. permit allow bypassing. Bypassing will be allowed only when absolutely necessary and the approval of the Engineer, the State and U.S.E.P.A. is mandatory.

**1.04 INSTALLATION OF EQUIPMENT**

- A. Special care shall be taken to ensure proper alignment of all equipment with particular reference to mechanical equipment such as pumps and electric drives. The units shall be carefully aligned on their foundations by qualified millwrights and their base plates shimmed to correct elevation and alignment at the anchor bolts. The anchor bolts shall be set in place and the nuts tightened against the shims. The alignment of equipment shall be further checked after securing to the foundations, and, after confirmation of all alignments, the base plates shall be finally grouted in place. The Contractor shall be responsible for the exact alignment of equipment with associated piping, and under no circumstances will "pipe springing" be allowed.
- B. All wedges, shims, filling pieces, keys, packing, grout, and other materials necessary to properly align, level, and secure equipment in place shall be furnished by the Contractor at no additional cost to the Owner. All parts intended to be plumb or level must be proven so.

**1.05 SLEEVES, OPENINGS, AND ANCHORS**

- A. The Contractor shall provide all openings, channels, chases, etc., and install anchor bolts and other items to be embedded in concrete as required to complete the work under this Contract, together with those required by subcontractors, and shall do all cutting and patching, except cutting and patching of materials of a specified trade and as stated otherwise in the following paragraph.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

- B. The Contractor shall coordinate with equipment suppliers and subcontractors to provide all sleeves, inserts, hangers, anchor bolts, etc. of the proper size and material for the execution of the work. the Contractor shall be responsible for any corrective cutting and refinishing required to make necessary openings, chases, etc. In no case shall beams, lintels or other structural members be cut without the written approval of the Engineer.

**1.06 PROVISIONS FOR CONTROL OF EROSION AND POLLUTANTS**

Sufficient precautions shall be taken during construction to minimize the runoff of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other materials harmful to humans, fish, or other life, into the ground and surface waters of the state. Control measures must be adequate to assure that turbidity in the receiving waters will not be increased more than 10 nephelometric turbidity units (NTU), or as otherwise required by the state or other controlling agency, in water used for public water supply or fishing unless limits have been established for the particular water. In surface water used for other purposes, the turbidity must not exceed 25 NTU unless otherwise required by the state or other controlling agency. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.

**1.07 ROADSIDE CULVERTS AND STRUCTURES**

- A. Should the scope or location of the Work require the removal of roadside culverts and/or structures (i.e., bridges, pipes), their removal and relaying or replacement shall be included in the cost of the various other pay items at no extra payment. Relaying roadside pipe culverts, replacing broken pipe, setting driveway bridges, or replacing bridges shall be equal to or better than that which existed before the work. Replacements of broken pipe or bridges may be with used materials.

**1.08 RELOCATION OF MAILBOXES, STREET AND TRAFFIC SIGNS**

- A. When mailboxes are located within the limits of construction, the Contractor shall give the mailbox owner sufficient written notice to remove his mailbox from the construction site. If the mailbox is not removed the Contractor shall remove the mailbox and replace the mailbox to the same condition that existed prior to construction.

Street name markers and traffic signs which are within the construction limits shall be removed, stored, protected and reinstated in approximately the original location by the Contractor. Any markers or signs which become lost or damaged shall be replaced by the Contractor equal to or better than the original.

**1.09 PROTECTION OF WORK**

- A. Until the acceptance of the work by the Engineer as evidenced in writing, said work shall be under the charge and care of the Contractor. The Contractor shall take every necessary precaution against damages to any part thereof by the elements or from any other cause. The Contractor shall rebuild, restore, repair, and make good, at his own expense, all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance.

**1.10 INCLEMENT WEATHER**

- A. Within thirty (30) days of the date of Notice to Proceed, the Contractor shall submit to the Engineer an Inclement Weather Preparedness Plan. The plan shall outline the necessary measures which the Contractor will perform in case of the occurrence of storm conditions and/or hurricanes.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

- B. In the event of inclement weather, or whenever Engineer shall direct, Contractor and Subcontractors will protect carefully the Work and materials against damage or injury from the weather, including sudden rises in sewer flows due to storms outside the immediate construction zones. Damaged Work and materials shall be removed and replaced. If, in the opinion of the Engineer, any portion of Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or Subcontractors to so protect the Work, no additional time for removal and replacement will be given by the Owner.

**1.11 WATERTIGHTNESS**

- A. Special precautions shall be taken in the curing of concrete to reduce concrete cracking as called for in Section 03300. Each water-retaining structure (those which are intended to hold a liquid) shall be filled and tested for leaks by the Contractor with clean water prior to surface coating or painting. Leaks shall be repaired by the Contractor. The procedure and manner in which leaks are repaired shall meet the approval of the Engineer. All costs associated with the testing and repair of leaks shall be at the expense of the Contractor. Prior to the beginning of the leakage test, the structure shall be filled to the highest working water level (to grade level in pump stations) and allowed to stand for a period of 24 hours to allow for absorption.

Leakage limitations shall be as follows:

1. All water visibly flowing through a concrete wall shall constitute a leak and shall be repaired by pumping and sealing the crack with a two-part water intensive epoxy.
2. Damp areas not exceeding one percent (1%) of the total wall wetted area and not having visible seepage shall be conditionally acceptable subject to all said dampness being eliminated by application of the water side surface treatment as may be specified. In the absence of a specified water side surface treatment or where said treatment does not eliminate wall dampness, the water side of the wall shall be prepared in accordance with the manufacturer's instructions and an approved epoxy concrete surface coating applied.
3. All leakage testing shall be performed prior to tank backfill.
4. To check for leakage through the tank bottoms, the fall in surface water level during tank testing shall be measured and shall not exceed 0.5 inch in a 24 hour period, providing allowance for evaporation at a rate approved by the Engineer. Visual leaks, either flowing or damp areas, observed during the filling, absorption, or test periods shall be marked and locations recorded and repaired.

**1.12 SALVAGE**

- A. The Owner may desire to salvage certain items of existing equipment which are to be dismantled and removed during the course of construction. Prior to removal of any existing equipment from the site of the work, the Contractor shall ascertain from the Engineer whether or not the particular item or items are to be salvaged. Items to be salvaged shall be stockpiled on site in a location as directed by the Engineer. All other items of equipment shall be disposed of off-site by the Contractor at his own expense.

**1.13 PUBLIC NUISANCE**

- A. The Contractor shall not create a public nuisance, including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

- B. Sound levels from Contractor operations shall not exceed 45 dBA 7 P.M. to 7 A.M. or 55 dBA 7 A.M. to 7 P.M. This sound level to be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at operating equipment shall not exceed 85 dBA at the equipment at any time. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. If requirements of the local noise ordinance are more restrictive than the above limits, then the Ordinance shall have precedence over the above requirements. Work stoppage by the Engineer for excessive noise shall not relieve the Contractor of any obligations under the Contract, including, but not limited to, performance of the work at the contract time and contract price.
- C. No extra payment will be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.14 **UNFAVORABLE CONSTRUCTION CONDITIONS**

- A. The Contractor shall confine his operations to Work which will not be affected adversely by unfavorable weather, wet ground, or other unsuitable construction conditions. No portion of the work shall proceed under conditions which would affect adversely the quality or efficiency of the work, unless suitable special precautions or countermeasures are taken by the Contractor.
- B. During suspension of the work from any cause, the work shall be suitably covered and protected so as to preserve it from injury by the weather.
- C. If the Contractors work may be damaged or rendered inferior by unfavorable weather conditions, the Engineer may issue an order to suspend work. Compensation for additional Contract Time under other sections of this Specification will be awarded for suspended work as a result of unfavorable weather conditions. The authority of the Engineer to issue such an order shall not be interpreted as a requirement to do so.
- D. Any work constructed during unfavorable weather conditions and found to be damaged or of inferior quality shall be removed and replaced at no additional costs to the Owner or Engineer.

1.15 **RELOCATIONS**

The Contractor shall be responsible for the relocation of structures, including but not limited to, light poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the costs of work.

1.16 **SUBSURFACE AND SURFACE OBSTRUCTIONS**

In the event unforeseen subsurface or surface obstructions occur in the progression of work, the Contractor shall confer with the Engineer and obtain his written consent before undertaking any deviations from the plans. At the direction of the Engineer, the Contractor may be permitted to delete construction in the obstruction area temporarily; however, the Contractor shall make no claim for damage by this delay.

1.17 **EXAMINATION OF SITE**

Before submitting a bid for this project, the Contractor shall visit the site and become familiar with existing conditions under which the project is to be executed. No additional allowances will be made to the Contractor for any error or negligence on his part.

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**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

1.18 TOLERANCES

Contractor shall verify in the field before any material or equipment is fabricated the dimension when those dimensions of existing structures or equipment is dependent as correctness of such information. Should dimensions as shown on the drawing vary from the field, then the Contractor shall notify the Engineer and jointly resolve the figure in favor of the correct dimensions.

All work and materials shall be within reasonably accepted manufacturing and construction tolerances as defined by the drawings, specifications, and the manufacturer of material and equipment. If those tolerances exceed limits, the Engineer may accept the work provided the work will not be materially affected by the change and the interests of the Owner is protected.

1.19 PUMPING

- A. The Contractor with his own equipment shall do all pumping necessary to prevent flotation of any part of the structures during construction operations.
- B. The Contractor shall, for the duration of the contract and with his own equipment, pump out water and wastewater which may seep or leak into the excavations or structures at the work sites which shall be kept dry at all times.

1.20 HAZARDOUS LOCATIONS

- A. The existing wet wells, manholes, sewers, force mains, pipes, and other related areas are hazardous locations in that explosive concentrations of sewage gas may be present. The Contractor is cautioned that the above areas, especially the wet well, may be deficient in oxygen. Checks shall be made by the Contractor whenever personnel are working in these areas to insure that adequate ventilation has been provided.
- B. In his operations in hazardous locations, the Contractor shall use spark-proof tools and explosion-proof temporary lighting and shall not use electric power tools, open flame devices, electric welding or any device or methods which might conceivably cause ignition or explosion.
- C. If a working area atmosphere is unsafe, the Contractor shall furnish, install, operate, and later remove such temporary auxiliary ventilating facilities as are necessary to provide a safe atmosphere.
- D. The Contractor shall also instruct and caution his employees and the employees of his subcontractors to avoid smoking while in the hazardous areas. Suitable prominent "No Smoking" signs shall be placed at locations where sewage gas could be present.

1.21 OPERATING REQUIREMENTS FOR EXISTING PUMPING AND COLLECTION SYSTEMS

- A. During construction of the new facilities and rehabilitation of existing facilities the Owner's operators will be responsible for operating and maintaining the existing pumping and collection system located outside of the limits of the Contract site, and the Contractor shall be responsible for operating and maintaining the entire pumping and collection system within the Contract site. The Contractor shall provide adequate trained staff to perform proper system operation and maintenance. The Owner's operating staff will be responsible for the operation and maintenance of all existing facilities until they are formally taken over by the Contractor.
- B. When the Contractor is ready to begin work at a site, including the delivery of material, he shall notify the Engineer, and a date of site take-over by the Contractor will be agreed. On the site

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01100 - SPECIAL PROJECT PROCEDURES**

take-over date, a walk-through joint inspection will be made by the Contractor, Owner, and Engineer at which notes will be made and photographs taken documenting the conditions of the facilities and a Contractor take-over document prepared and executed by the Owner and Contractor.

Thereafter, the Contractor shall operate and maintain the facilities to the satisfaction of the Engineer and Owner until the Contract work at the site and facilities is finished and the Certificate of Substantial Completion is issued by the Engineer. The cost of operating and maintaining the site and facilities during this construction period shall be included in the bid price except for the following which will be furnished by the Owner:

1. Electricity for operating the facilities.
2. Water for operating the facilities (not for construction).
3. Spare parts for replacements necessary but not caused by the Contractor's deficient operation and maintenance.

1.22 **NOTIFICATION OF WORK ON EXISTING FACILITIES**

Before commencing work on any of the existing structures or equipment, the Contractor shall notify the Engineer in writing at least ten (10) calendar days in advance of the date he proposes to commence such work.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01200 - PROJECT MEETINGS**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Engineer shall schedule and administer a preconstruction meeting at the office of the Program Manager, construction progress meetings, and specially called meetings throughout the progress of the work. The Engineer will:
  - 1. Prepare agenda for meetings.
  - 2. Make arrangements for meetings.
  - 3. Preside at meetings.
  - 4. Record the minutes; include significant proceedings and decisions.
  - 5. Reproduce and distribute copies of minutes.
- B. The Contractor and representatives of, where appropriate, subcontractors and suppliers shall attend meetings. The representative shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend and identify at the meetings the actual status of the Contract Work and, when the Work is not being performed consistently with the Contract Documents and construction schedules, shall identify at the meetings the steps he is taking to resolve the inconsistency.

**1.02 PRE-CONSTRUCTION MEETING**

- A. The Contractor shall participate in a preconstruction meeting to be held after the effective date of the Agreement and/or on the date of Notice to Proceed.
- B. The following are expected to be in attendance:
  - 1. Owner's Representative and other staff as appropriate.
  - 2. Engineer and his professional consultants as appropriate.
  - 3. Engineer's Resident Project Representative.
  - 4. Contractor's Representative and Construction Superintendent.
  - 5. Subcontractors as appropriate.
  - 6. Utility representative as appropriate.
  - 7. Others as appropriate.
- C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:
  - 1. Description of all parties including contract representatives, phone numbers, and addresses.
  - 2. Responsibilities of Owner.
  - 3. Responsibilities of authorities of the Engineer.
  - 4. Responsibilities of the Contractor.
  - 5. Responsibilities and Authorities of Resident Project Representative.
  - 6. Responsibilities and Authorities of Testing Laboratory.
  - 7. General Project Status and Information.
  - 8. Location of Items.
  - 9. Regulatory Requirements.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01200 - PROJECT MEETINGS**

10. Site Conditions.
11. Labor Requirements.
12. Submittals required by Contractor.
13. Payment to Contractor.
14. Project Closeout.

**1.03 CONSTRUCTION PROGRESS MEETING**

- A. Construction progress meetings will be held monthly with the first meeting thirty (30) days after the date of Notice to Proceed.
- B. Special construction progress meetings will be held as required by progress of the Work.
- C. The following are expected to be in attendance:
  1. Owner Representative and other staff as appropriate.
  2. The Engineer and his professional consultants as appropriate.
  3. Contractor's Representative and/or Construction Superintendent.
  4. Subcontractors as appropriate.
  5. Suppliers as appropriate.
  6. Others as appropriate.
- D. The following matters are expected to be addressed:
  1. Review and approve minutes of previous meeting.
  2. Review of work progress.
  3. Field observations, problems, conflicts.
  4. Problems which impede Construction Schedule.
  5. Review of off-site fabrication, delivery schedules.
  6. Corrective measures and procedures to regain Construction Schedule.
  7. Revisions to Construction Schedule.
  8. Progress and schedule during succeeding work period.
  9. Payment applications and processing.
  10. Submittals.
  11. Maintenance of quality standards.
  12. Changes, substitutions, and change orders.
  13. Review proposed changes for:
    - a. Effect on Construction Schedule and completion date.
    - b. Effect on other contracts of the Project.
  14. Other matters as appropriate.
  15. Record drawings.
- E. The Contractor shall be prepared to discuss the above topics and to make commitments for resolving deficiencies.
- F. The Contractor shall provide a current submittal log at each progress meeting in accordance with Section 01340.

**PART 2 - PRODUCTS - NOT USED**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01200 - PROJECT MEETINGS**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***





**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01300 - SUBMITTALS**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This section refers to the general procedures and requirements for submittals. Specific requirements for submittals are included in other sections of these specifications.

1.02 DEFINITION

The term "submittal" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operation instructions, catalog sheets, data sheets, product data, samples, and similar items.

1.03 LIST OF SUBMITTALS

- A. The following is a list of submittals and the times required for submitting all in accordance with the Contract Documents.

<u>ITEM</u>	<u>TIME</u>
1. Schedule of Progress	Pre-Construction Conference*
2. Schedule of Payments	Pre-Construction Conference*
3. Schedule of Values	Pre-Construction Conference*
4. List of Manufacturers and Associated Products	Prior to Start of Work
5. Substitute Material or Equipment	Prior to Start of Work
6. Manufacturers Certificate of Compliances	Prior to Start of Work
7. Change Orders	Within 15 days of occurrence
8. Layout and Shop Drawings of Fabricated Items	Prior to Installation
9. Shop Drawings	Preferred Prior to Start of Work or Prior to Installation
10. Operation & Maintenance Manuals and Spare Parts	Completion of Project
11. Tabulation of Equipment w/Data	Completion of Project
12. Certificate of Gradation of Aggregate	Prior to Installation
13. Concrete Mix Design	Prior to Installation
* If no Pre-Construction Conference is held, Prior to First Payment.	

- B. The Engineer may require submittals not listed above to expedite the work. Contractor shall comply to all submittal requests made by Engineer.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01310 - PROGRESS SCHEDULES**

**PART 1 - GENERAL**

1.01 **REQUIREMENTS INCLUDED**

- A. Contractor shall comply with the General Conditions.
- B. Submit revised progress schedules periodically.

1.02 **FORM OF SCHEDULES**

- A. Prepare schedules in the form of a horizontal bar chart.
  - 1. Provide separate horizontal bar for each trade or operation.
  - 2. Horizontal time scale: Identify the first work day of each week.
  - 3. Scale and Spacing: To allow for notations and future revisions.
  - 4. Minimum sheet size: 8 1/2" x 11"
- B. Formal of Listings: The table of contents of the Contract Documents.
- C. Identification of Listings: By bid items.

1.03 **CONTENT OF SCHEDULES**

- A. Construction Progress Schedule:
  - 1. Show the complete sequence of construction by activity.
  - 2. Show the dates for the beginning, and completion of, each major element of construction.
  - 3. Show projected percentage of completion for each item, as of the first day of each month.
  - 4. Show an anticipated monthly payment schedule.
- B. Submittals Schedule for Shop Drawings, Product Data and Samples. Show:
  - 1. The dates for Contractor's submittals.
  - 2. The dates approved submittals will be required from the Engineer.

1.04 **PROGRESS REVISIONS**

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule:
  - 1. Major changes in scope.
  - 2. Activities modified since previous submission.
  - 3. Revised projections of progress and completion.
  - 4. Other identifiable changes.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01310 - PROGRESS SCHEDULES**

- C. Provide a narrative report as needed to define:
  - 1. Problem areas, anticipated delays, and the impact on the schedule.
  - 2. Corrective action recommended, and its effects.

**1.05    SUBMISSIONS**

- A. Submit initial schedules in accordance with the General Conditions.
  - 1. Engineer will review schedules and return review copy within ten (10) days after receipt.
  - 2. If required, Contractor shall resubmit within seven (7) days after return of review copy.
- B. Submit revised progress schedules with each Application for Payment.
- C. Submit the number of opaque reproductions which the Contractor requires, plus five copies which will be retained by the Engineer.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Contractor shall submit to the Engineer for review and exception, if any, such working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this article called data), and material samples (hereinafter in this article called samples) as are required for the proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
- B. Within fifteen (15) calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Engineer a complete list of preliminary data on items for which shop drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way relieve the Contractor from submitting complete shop drawings, data, and samples in accordance with the Specifications. This procedure is required in order to expedite final review of shop drawings.
- C. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting. This log should include the following items:
  - 1. Submittal Description and Number assigned.
  - 2. Date to Engineer.
  - 3. Date returned to Contractor (from Engineer).
  - 4. Status of Submittal (Approved, Approved as Noted, Revise and Resubmit, Not Approved).
  - 5. Date of Resubmittal and Return (as applicable).
  - 6. Date material released (for fabrication).
  - 7. Projected date of fabrication.
  - 8. Projected date of delivery to site.
  - 9. Status of O&M Manuals submitted.

**1.02 CONTRACTOR'S RESPONSIBILITY**

- A. It is the duty of the Contractor to check all Drawings, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp or evidence that the Contractor has not performed the required review will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents.
- B. Determine and verify:
  - 1. Field measurements.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.
  - 4. Conformance with Specifications and indicate all variances from the Specifications.
- C. All shop drawings or other submittals shall be accompanied by the Engineer's standard transmittal form. This form may be obtained in quantity from the Engineer at reproduction cost. Any submittal not accompanied by such a form, or where all applicable items on the form are not

**TECHNICAL SPECIFICATIONS**  
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**SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES**

completed, will be returned for resubmittal. A separate transmittal form shall accompany each shop drawing, product data, or sample.

- D. The Contractor shall be solely responsible for the accuracy and completeness of the shop drawing. In no case shall a subcontractor or supplier submit shop drawings directly to the Engineer. All communications concerning shop drawings or the project in general shall be directed through the Contractor. Contractor shall coordinate between subcontractor, suppliers, and manufacturers all shop drawings to ensure that the total work including all interconnections, timers, control, etc., or the system conforms to the design criteria specified.
- E. No products, equipment, or material shall be delivered or fabricated until the shop drawings, product data, or sample have been submitted and checked by the Engineer for its conformance to the drawings and specifications and given final approval for fabrication or erection by the Engineer. Until final approval of shop drawing or sample is given in writing, Contractor shall not proceed with any work directly or indirectly associated with that item.
- F. The Contractor shall furnish the Engineer a schedule of shop drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- G. The Contractor shall submit to the Engineer all Drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the Engineer receives them.
- H. All shop drawings shall be clearly marked and labeled as to their intended use. Any submittal which causes the Engineer to ponder or guess at the intended use shall be rejected.
- I. The Contractor shall submit seven (7) copies of shop drawings and descriptive or product data submittals to complement shop drawings to the Engineer which will be retained for his use. The Contractor shall submit extra sets as required for his subcontractors, his suppliers, and his own use. The Contractor shall submit one set of three (3) mil thick polyester film reproducibles for blueprinting purposes for all submittal data or Drawings on sheets larger than 11-inches by 17-inches. The Engineer will review the blueprints and return to the Contractor the set of marked-up blueprints with appropriate review comments along with the reproducible sheets.
- J. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by Engineer of the necessary shop drawings.
- K. The Contractor shall utilize a Sequential Numbering System for submittals (1-999). Resubmittals or confirming material shall be assigned a letter next to the submittal number, i.e., A=second submittal, B=third submittal, etc.
- L. Submittals shall include a certified statement of compliance to the requirements detailed in the specifications in addition to other submittal requirements. This certification shall be prepared by the manufacturer and not the local supplier. Validity of the authority and position of the person signing the certification shall be verified by a Notary Public. The statement of compliance shall address each point of conformance contained in the governing specifications with definitive comments of either compliance or non-compliance. Statements of non-compliance with points of conformance shall be accompanied by a statement of justification as to the reason for non-compliance and why the non-complying feature is considered to be either equal to or better than the specified feature. The Engineer will use the certified statement of compliance in his

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**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES**

evaluation of the submittal rendering a judgement as to equality to the specified product and issuing a statement as to whether the product is acceptable for or rejected from incorporation into the work.

- M. When a manufacturer named in the controlling specification is chosen to supply a product, and the details of manufacture, size, and installation are shown on his standard catalog cut sheets, the manufacturer may submit the certified statement of compliance as detailed above along with installation details specific to the Work such as laying schedules, etc. as required, deleting the standardized catalog data.
- N. Should the Contractor provide a submittal that would require modification to a structure, hydraulic piping, electrical components, layout, controls, or other previously designed aspects of the project, he shall submit with his transmittal, additional design calculations and details of the modification. Any cost incurred by the Engineer for review of these modifications and the direct affect on other designed portions of the project and the implementation of alternate designs shall be borne by the Contractor. No additional costs will be incurred by the Owner or Engineer for modifications or deviations from the original drawings and specifications as submitted by shop drawings, product data, or samples.
- O. Shop drawings shall be prepared by a qualified detailer indicating all dimensions, weights, tolerances, clearances, space required, and structures. The manufacturer or supplier of equipment or materials shall certify as to the correctness of the dimensions. Contractor shall verify all drawings submitted as to their completeness with respect to field measurements, field construction criteria, catalog numbers, and similar data. Any drawing submitted through the Contractor not bearing the Contractors approval, data, and checker's name will be returned to the Contractor.

**1.03 ENGINEER'S REVIEW OF SHOP DRAWINGS**

- A. The Engineer's review of Drawings, data and samples submitted by the Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation.
- B. The review of Drawings and schedules will be general, and shall not be construed:
  - 1. as permitting any departure from the Contract requirements;
  - 2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
  - 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. When reviewed by the Engineer, each of the shop drawings will be identified as having received such review being so stamped and dated.
  - 1. If the copies received are marked "Approved", those documents are used as guidelines for installation.
  - 2. If the copies received are marked "Approved As Noted", the Contractor shall make the appropriate corrections to the material and/or product and incorporate the revised material and/or product into the project.
  - 3. If the copies received are marked "Revise and Resubmit", the material or product may be acceptable; however, substantial corrections require the Engineer to review the material or

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product after the revisions have been made. A formal resubmittal of the revised material and/or product is required using a separate transmittal form. Seven (7) copies of the revised resubmittal are required.

4. If the copies received are marked "Not Approved", the material and/or product cannot be incorporated into the project. Another product approved by the Contract Documents shall be submitted with a new transmittal form accompanied by seven (7) copies of shop drawings, product data, or samples.
- D. Upon review of the shop drawing, product data, or sample by the Engineer, the Engineer will distribute the submittals as follows:

<u>No. Required</u>	<u>To Whom</u>	<u>For Use</u>
1	Engineer	Office
2	Owner	O&M Manuals
1	Resident Project Representative	Field
3	Contractor	Field, Office, Vendor

- E. If the drawings or schedules as submitted describe variations per subparagraph 1.04.D, and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or Time, the Engineer may return the reviewed Drawings without noting any exception.
- F. Resubmittals will be handled in the same manner as first submittals. The Contractor shall direct specific attention to revisions other than the corrections requested by the Engineer on previous submissions by written details or markings on the resubmitted Shop Drawings. The Contractor shall make any corrections required by the Engineer.
- G. If the Contractor considers any correction indicated on the Drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.
- H. The Engineer will review a submittal/resubmittal a maximum of three (3) times after which cost of review will be borne by the Contractor. The cost of engineering shall be equal to the Engineer's charges to the Owner under the terms of the Engineer's agreement with the Owner.
- I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions or approval from the Engineer.

**1.04 SHOP DRAWINGS**

- A. Shop Drawings shall be complete and detailed.
- B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.
- C. Each shop drawing shall have a blank area three and one-half inches by three and one-half inches (3½" x 3½"), located adjacent to the title block. The title block shall display the following:



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1. Number and title of the drawing.
  2. Date of drawing or revision.
  3. Name of project building or facility.
  4. Name of Contractor and Subcontractor submitting drawings.
  5. Clear identification of contents and location of the work.
  6. Specification number and title.
- D. If Drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustments in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such Drawings have been reviewed.
- E. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material as required. Materials and equipment lists shall give for each item thereon the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.
- F. The Contractor shall provide a list including the equipment name, address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained for all mechanical and electrical equipment furnished.
- G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the Engineer along with the required Shop Drawings. The installation list shall include at least five installations where identical equipment has been installed and has been in operation for a period of at least one (1) year.
- H. Only the Engineer will utilize the color "red" in marking Shop Drawing submittals.

**1.05 WORKING DRAWINGS**

- A. Working drawings shall be considered to mean the Contractor's plans for temporary structures.
- B. Copies of working drawings as noted in subparagraph 1.02, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the Engineer) in advance of their being required for work.
- C. The Engineer will not review working drawings but shall use them as information to monitor the work performed by the Contractor.

**1.06 SAMPLES**

- A. The Contractor shall furnish for the review of the Engineer samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed and the Contractor shall prepay all shipping charges. Materials or equipment for which samples are required shall not be used in work until reviewed by the Engineer.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
1. Functional characteristics of the product, with integrally related parts and attachment devices.

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**SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES**

2. Full range of color, texture, and pattern.
- C. Each sample shall have a label indicating:
  1. Name of Project.
  2. Name of Contractor and Subcontractor.
  3. Material or Equipment represented.
  4. Place of origin.
  5. Name of Producer and Brand (if any).
  6. Location in Project.

Samples of finished materials shall have additional marking that will identify them under the finished schedules.

- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in subparagraph 1.06.B above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer and the remaining copy shall be for the Contractor's records. Review of a sample shall be only for the characteristics or use named and shall not be construed to change or modify any Contract requirements.
- E. Reviewed samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the reviewed samples. Samples which failed testing or were rejected will be returned to the Contractor at his expense, if so requested at time of submission.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01370 - SCHEDULE OF VALUES**

**PART 1 - GENERAL**

**1.01     REQUIREMENTS INCLUDED**

- A. Submit to the Engineer a Preliminary Schedule of Values in accordance with Article 2.6 of the General Conditions.
- B. Upon request of the Engineer, support the values with data which will substantiate their correctness.
- C. Refine the Schedule of Values to reflect the requirements of Article 2.9 of the General Conditions. The final Schedule of Values shall be used only as the basis for the Contractor's Applications for Payments.

**1.02     FORM AND CONTENT OF SCHEDULES OF VALUES**

- A. Type schedule on 8 1/2" x 11" or 8 1/2" x 14" white paper. Contractor's standard forms and automated printout will be considered for approval by the Engineer upon Contractor's request. Identify schedule with:
  - 1. Title of Contract and location.
  - 2. Engineer and Contract numbers.
  - 3. Name and Address of Contractor.
  - 4. Contract designation.
  - 5. Date of submission.
- B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Identify each line item with the number and title of the respective major section of the specifications.
- D. For each major line item, list sub-values of major products or operations under the item.
- E. For the various portions of the Work:
  - 1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
  - 2. For items on which progress payments will be requested for stored materials, break down the value into:
    - a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the Engineer.
    - b. The total installed value.
- F. Follow the Bid Form Schedule of Prices as the format for listing component items for unit price project.
- G. The sum of all values listed in the schedule shall equal the total Contract Sum of all lump sum and extended unit price items in the Bid Form.

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**SECTION 01370 - SCHEDULE OF VALUES**

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01380 - CONSTRUCTION PHOTOGRAPHS**

**PART 1 - GENERAL**

1.01 REQUIREMENTS INCLUDED

- A. Contractor shall take construction record photographs monthly during course of the Work.

1.02 PHOTOGRAPHY REQUIRED

- A. Video Survey as specified herein (pre-construction).
- B. Provide two (2) photographs each month of each major portion of the work.
- C. Provide two (2) prints of each photograph.
- D. Negatives:
  - 1. Remain property of photographer.
  - 2. Maintain negatives for a period of two (2) years from date of Substantial Completion of entire Project.
  - 3. At the request of the Engineer, furnish additional prints at commercial rates applicable at time of purchase.
- E. As an alternative to hand held photos, color aerial photographs showing construction will be acceptable. Two (2) copies of each view will be submitted.
- F. When piping is required within a plant site, additional photos will be required showing location of all piping, valves, and fittings with relationship to other objects or structures. Contractor shall include in photograph a colored yard stick so as to allow viewer of photo to make measurement on photograph.

1.03 COSTS OF PHOTOGRAPHY

Contractor shall pay costs for specified video taping, photography, and prints. Additional photography or prints requested will be paid by the requesting agency.

**PART 2 - PRODUCTS**

2.01 PRINTS

- A. Color:
  - 1. Paper: Single weight, white base.
  - 2. Finish: Smooth surface, glossy.
  - 3. Size: 4 in. x 6 in.
- B. Identify each print on back, listing:
  - 1. Name of Project.
  - 2. Facility Location.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01380 - CONSTRUCTION PHOTOGRAPHS**

3. Orientation of view.
4. Date and time of exposure.
5. Identification of exposure.

**2.02    VIDEO TAPE**

- A. Specifications for Audio-Video Survey - Prior to the start of construction on the contract, the Contractor shall furnish to the Engineer, the video tapes of the construction areas. The tapes shall be reviewed by the Engineer and either approved or additional coverage will be required to fully show the physical conditions of the work areas. The Contractor shall have the additional coverage taped and shall not begin work, including moving equipment and/or material on the project site, until the audio-video survey has been approved by the Engineer. After approval, the Contractor shall supply two (2) copies of the audio-video survey to the Engineer. One copy of the tapes will remain available for viewing by the Contractor and may be reviewed by him for any assistance that the tapes may provide in resolving disputes which arise with the property owners claiming improper restoration of their properties. That copy of the tapes will also be used as a guide by the Engineer, prior to issuance of final payments, in determining the adequacy of restoration and the extent of damages attributable to the Contractor's work. The remaining copy of the tapes will be delivered to the Owner's representative.
- B. Technical Requirements - The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project, as well as those more subjective requirements of high-quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortion.
- C. Recorder - The recorder shall be an industrial grade device and shall record the color signal with a minimum horizontal resolution of 240 lines. The recorder shall be of the 1/2-inch VHS format. Commercial grade recorders shall not be acceptable.
- D. Camera - When taping areas accessible to conventional wheeled vehicles, the color video camera shall have a horizontal resolution of 550 lines at center (e.g., Panasonic WV-V3 or equal). When taping areas not accessible to conventional vehicles, the color video camera shall have a horizontal resolution of at least 550 lines at center.
- E. Character Printout - All video recordings must, by electronic means, display continuously and simultaneously, generated digital information to include (1) the date of the recording, (2) the engineering stationing corresponding to the stationing on the plans, or as directed by the Engineer, (3) the name of the street, easement or building being documented, and (4) the direction of travel and the viewing side. The date shall appear linearly in the bottom left hand corner (e.g. 02-21-92). Plan stationing shall be expressed in engineering symbols and shall appear directly beneath the date information (e.g., 87+03). The remainder of the printed information shall appear at the bottom of the viewing screen (e.g., N on First St. V/E). To maximize viewing area no more than twenty-four (24) rasters shall be used to express the digital information.

**PART 3 - EXECUTION**

**3.01    TECHNIQUE FOR STILL PHOTOGRAPHS**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01380 - CONSTRUCTION PHOTOGRAPHS**

- A. Factual presentation.
- B. Correct exposure and focus.
  - 1. High resolution and sharpness.
  - 2. Maximum depth-of-field.
  - 3. Minimum distortion.

**3.02 VIEWS REQUIRED FOR STILL PHOTOGRAPHS**

- A. Contractor shall photograph from locations to adequately illustrate condition of construction and state of progress. Consult with Engineer at each period of photography for instructions concerning views required.
- B. In addition, the Contractor shall photograph the sites of each major portion of the work prior to the beginning of work at each site. Views shall be as required by the Engineer. In addition, the same sites shall be photographed utilizing the same views at the completion of construction.
- C. The Contractor shall also inspect and photograph any structure within 100 feet of each construction site prior to beginning of work. Photographs of any existing damaged areas shall be taken.

**3.03 TECHNIQUE AND VIEWS REQUIRED FOR VIDEO TAPING**

- A. At the start of production, and at the beginning of a new street or easement, an identification summary shall be read into the record while, at the same time, a wide-angle view with numeric displays shall be provided for a visual record. This summary will include (1) tape number, (2) job title, (3) job location, (4) positional location at job start, (5) date and time, (6) weather and (7) any other notable conditions.
- B. Coverage - The recording shall include coverage of all surface features located within the construction zone-of-influence. This zone shall be defined as (1) the area within the permanent and temporary easements and areas adjacent to these easements which may be affected by routine construction operations, (2) road right-of-way, (3) areas directed by the Owner. The surface features within the construction zone shall include, but not be limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, shrubbery and fences. Of particular concern shall be the existence, or non-existence, of any faults, fractures or defects. The coverage shall be continuous (i.e., the camera shall not be turned off once photography has begun) to the greatest extent practicably possible. If the camera must be turned off, then a verbal message shall be inserted stating that the camera will be turned off and the reason for discontinuing coverage.
- C. Visibility - No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording.
- D. Rate of Travel - The vehicle's rate of travel shall be indirectly proportional to the number, size and value of the surface features within that construction area's zone-of-influence. The average rate of travel shall not exceed forty-eight feet per minute. Forward motion shall be halted when viewing objects or structures outside the limits of the street or easement being documented. Conversely, only the street or easement being documented shall be viewed while the camera is being moved forward.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01380 - CONSTRUCTION PHOTOGRAPHS**

- E. Camera Elevation - To ensure proper perspective and to capture optimal detail, the distance from the camera lens to the ground shall not be less than twelve feet when conventional wheeled vehicles are employed.
- F. Experience - The operator in charge must have had previous experience video documenting a minimum of fifty miles of pre-construction work. Any apprentice operators must be continuously supervised by an above-described experienced operator.

**3.04    DELIVERY OF PRINTS**

- A. After approval of videos, deliver two (2) record copies to Engineer.
- B. Pre-construction photographs shall be delivered to the Engineer prior to the beginning of construction.
- C. Deliver progress prints to Engineer to accompany each Application for Payment.

**3.05    DELIVERY OF VIDEO TAPES**

- A. Recording Schedule - The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site, but not more than seven weeks prior to the placement of materials or equipment.
- B. Tape Indexing - All video tapes and their storage cases shall be properly identified by video tape index number, project title and general project location. Displayed on the storage case of each video tape shall be a log of that tape's contents. That log shall describe 1) the various segments contained on that tape in terms of the names and the sides of the streets or easements, 2) coverage start, direction and endpoints, with corresponding video tape player counter numbers. A cumulative index correlating the various segments of coverage to their corresponding tapes shall be typed and supplied to the Owner.
- C. Unacceptable Documentation - The Owner shall have the authority to reject all or any portion of the video tape documentation not conforming to the specifications. Those rejected portions shall be retaped at no additional cost to the Owner.
- D. Specification Deviations - Any deviation from these specifications must have the written approval of the Owner/Engineer.
- E. Payment - Payment for video documentation shall be included in the costs of work.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01400 - QUALITY CONTROL**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This section includes general quality control procedures and requirements that are applicable to other sections.

1.02 TESTING LABORATORY

- A. If desired by the Owner, a qualified testing laboratory will make field visits to sample such items as portland cement concrete, hot or cold-mix asphalt, earthwork fill and compaction, aggregate, welding, etc. The frequency of testing will be at the discretion of the Owner and the recommendations of the Engineer to the Owner.
- B. Refer to Section 01410 for detailed description of testing laboratory services.

1.03 INSPECTION SERVICES

- A. The Owner may employ the services of a Resident Project Representative (RPR) to review field operations, provide daily reports, and act as a liaison between the Engineer and Contractor.
- B. Refer to Section 01420 for detailed description of the Resident Project Representative.

1.04 CONFORMANCE STANDARDS

- A. The manufacturer of equipment shall issue a manufacturer's conformance certificate indicating the product was assembled or constructed in accordance with specific standards and that the product performs under specific parameters.
- B. Submit conformance certificates in accordance with Section 01300 - Submittals.

1.05 CERTIFIED TEST REPORTS

- A. Test reports performed in the field or in the shop shall be certified by the manufacturer of the product.
- B. Submit certified test reports in accordance with Section 01300 - Submittals.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01410 - TESTING LABORATORY SERVICES**

**PART 1 - GENERAL**

**1.01    REQUIREMENTS INCLUDED**

Owner will employ and pay for the services of an Independent Testing Laboratory to perform testing specifically indicated on the Contract Documents or specified in the Specifications and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.

1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

**1.02    LIMITATIONS OF AUTHORITY OF TESTING LABORATORY**

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract Documents.
2. Approve or accept any portion of the Work.
3. Perform any duties of the Contractor.

**1.03    CONTRACTOR'S RESPONSIBILITIES**

- A. Cooperate with laboratory personnel, provide access to Work and to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents.

All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.

E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.
2. To obtain and handle samples at the Project site or at the source of the product to be tested.
3. To facilitate inspections and tests.
4. For storage and curing of test samples.

F. Notify laboratory at least 24 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01410 - TESTING LABORATORY SERVICES**

When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the Engineer.
- H. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the Contractor may pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

3.01 REPORTS

Testing Laboratories are required to provide a minimum of four (4) copies of each testing report. Copies shall be distributed by the testing laboratory to 1) Owner, 2) Engineer, 3) Contractor, and 4) Resident Project Representative.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01420 - INSPECTION SERVICES**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Owner will employ the services of a Resident Project Representative (RPR) in an effort to protect the Owner against defects and deficiencies in the work.
- B. The RPR will 1) act as the Engineer's agent at the site, 2) act as directed by and under the supervision of the Engineer and 3) will confer with the Engineer regarding the RPR's actions.
- C. RPR's dealings in matters pertaining to the on-site work shall in general be with Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of and under the direction of Engineer.

**1.02 DUTIES AND RESPONSIBILITIES OF RPR**

- A. Schedules - Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
- B. Conferences and Meetings - Attend meetings with Contractor, such as pre-construction conferences, progress meetings, job conferences, and other project-related meetings, and prepare and circulate copies of minutes thereof.
- C. Liaison -
  - 1. Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents; and assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.
  - 2. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
- D. Shop Drawings and Samples -
  - 1. Record date of receipt of Shop Drawings and samples.
  - 2. Receive samples which are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.
  - 3. Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by Engineer.
- E. Review of Work, Rejection of Defective Work, Inspections and Tests -
  - 1. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - 2. Report to Engineer whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01420 - INSPECTION SERVICES**

Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

3. Verify that tests, equipment and systems startup and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to Engineer appropriate details relative to the test procedures and startup.
  4. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.
- F. 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.
- G. Modifications - Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor decisions as issued by Engineer.
- H. Records -
1. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
  2. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
  3. Records names, addresses and telephone numbers of all Contractors, subcontractors, and major suppliers of materials and equipment.
- I. Reports -
1. Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
  2. Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.
  3. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from Contractor and recommend to Engineer Change Orders, Work Directive Changes, and Field Orders.
  4. Report immediately to Engineer and Owner upon the occurrence of any accident.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01420 - INSPECTION SERVICES**

- J. 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.
- K. Certificates, Operation and Maintenance Manuals - During the course of the Work, verify that certificates, operation and maintenance manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.
- L. Completion -
  - 1. Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
  - 2. Conduct final inspection in the company of Engineer, Owner and Contractor and prepare a final list of items to be completed or corrected.
  - 3. Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance.

1.03 **LIMITATION OF AUTHORITY OF RPR**

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

**PART 2 - PRODUCTS - NOT USED**

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01420 - INSPECTION SERVICES**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01505 - MOBILIZATION**

**PART 1 - GENERAL**

**1.01    DEFINITION**

A. Mobilization shall include the obtaining of all permits, insurance, and bonds; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary building, and other construction facilities; all as required for the proper performance and completion of the work. Mobilization shall include but not be limited to the following principal items:

1. Moving on to the site of all Contractor's plant and equipment required for first month operation.
2. Installing temporary construction power and wiring.
3. Establishing fire protection system.
4. Developing construction water supply.
5. Providing field office trailers for the Contractor and the Engineer, complete with all specified furnishings and utility services including telephones.
6. Providing on-site sanitary facilities and potable water facilities as specified.
7. Arranging for and erection of Contractor's work and storage yard.
8. Submittal of all required subcontractor insurance certificates and bonds.
9. Obtaining all required permits.
10. Posting all OSHA required notices and establishment of safety programs.
11. Have the Contractor's superintendent at the jobsite full time.
12. Have provided a detailed schedule acceptable to the Owner for project use as specified.
13. Audio-Video Survey.

**1.02    PAYMENT FOR MOBILIZATION**

- A. The Contractor's attention is directed to the condition that no payment for mobilization, or any part thereof will be approved for payment under the contract until all mobilization items listed above have been completed as specified.
- B. If the project is a unit price contract and a line item is designated "mobilization", all costs incurred for the above work shall be placed under that item. If no item is listed for "mobilization", the costs for the above described work shall be placed in other items.
- C. For lump sum projects, the costs for this work shall be included in the overall costs of the project and shown as a separate item in the Schedule of Values.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01505 - MOBILIZATION**

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01510 - TEMPORARY UTILITIES**

**PART 1 - GENERAL**

1.01 REQUIREMENTS INCLUDED

Furnish, install and maintain temporary utilities required for field offices and construction and remove on completion of the Work.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Comply with National Electric Code.

B. Comply with Federal, State and local codes and regulations and with utility company requirements.

**PART 2 - PRODUCTS**

2.01 MATERIALS, GENERAL

Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

A. Arrange with utility company and Owner to provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the Owner as stipulated by the Engineer.

B. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

2.03 TEMPORARY HEAT AND VENTILATION

A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work.

B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.

C. Portable heaters shall be standard approved units complete with controls.

D. Pay all costs of installation, maintenance, operation and removal, and fuel consumed.

E. Provide connections to existing facilities or extend and supplement the existing facilities with temporary units as required to comply with requirements. Pay all costs of installation, maintenance, operation and removal.

2.04 TEMPORARY TELEPHONE SERVICE

A. Arrange with local telephone service company, provide direct line telephone service, as stipulated in Section 01590, including an external bell at the construction site for the use of personnel and employees.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01510 - TEMPORARY UTILITIES**

B. Service required:

1. One direct line instrument in Field Office of Engineer for the Owner.
2. Other instruments at the option of the Contractor, or as required by regulations.

**2.05 TEMPORARY WATER**

- A. Provide and pay for all water required for construction and consumptive purposes.
- B. Install at each and every connection to the potable water supply a backflow preventer meeting the requirements of ASA A40.6, latest revision. Contractor shall be required to meter all water used.
- C. If potable water system is owned by the Owner, any water used for construction purposes will be provided by the Owner. Limited, reasonable, and unwhasteful amounts of water will be provided for clearing, flushing, disinfecting, testing, and other minor construction purposes. Unreasonable or wasteful use amounts as determined by the Owner will be charged at prevailing rates. The hours and duration of water usage shall be determined by the Owner.

**2.06 TEMPORARY SANITARY FACILITIES**

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

**PART 3 - EXECUTION**

**3.01 GENERAL**

- A. Comply with applicable requirements specified in Division 2 - Site Work, Division 15 - Mechanical, and Division 16 - Electrical.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

**3.02 REMOVAL**

- A. Completely remove temporary materials and equipment when their use is no longer required as determined by the Engineer.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01570 - TRAFFIC REGULATION**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Contractor shall be responsible for providing safe and expeditious movement of traffic through or around construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.
- B. Remove temporary equipment and facilities when no longer required and restore grounds to original and/or, or to specified conditions.

**1.02 TRAFFIC CONTROL**

- A. The necessary precautions shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization, and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and requirements for the duration of the construction period. Contractor to check traffic control devices on a daily basis as a minimum when beginning and ending the work day, and on weekends at a minimum of once per day.
- B. Any additional traffic control devices which may be required at time of construction by the Engineer and/or Owner shall be provided by the Contractor at no additional contract cost.
- C. The Contractor shall provide at least five (5) working days notification to the Engineer of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that the final approval of such closing can be obtained from the roadway owner at least 48 hours in advance. With any such closing adequate provision shall be made for the safe expeditious movement of traffic and pedestrians.
- D. The Contractor shall also be responsible for notifying Police, Fire and Ambulance Departments whenever roads are impassable.
- E. The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal traffic control scheme prior to construction. Any such actions shall be performed by the Contractor under the supervision, and in accordance with the Specifications, of the Owner, unless otherwise specified. Construction signing and activities shall not block existing traffic control signing, unless such signing is superseded by construction signing.

All traffic control devices not applying to an appropriate situation shall be covered or removed. No traffic conduit or traffic loops shall be disturbed without prior notification. Contractor shall take all precautions to avoid damage to traffic boxes, conduits, loops and supply lines. Should any of the above need to be relocated, the Contractor shall coordinate with roadway owner.

- F. The Contractor shall immediately notify the Engineer of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction of the project.
- G. Vehicular access to commercial and residential driveways shall be maintained except when necessary construction precludes such access. When such conditions arise that ingress or egress to the property is to be temporarily terminated, the Contractor shall notify the affected property owner at least 24 hours in advance of such construction.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01570 - TRAFFIC REGULATION**

- H. The Contractor shall also cooperate with the various parties involved in the delivery of mail and the collection and removal of trash and garbage to maintain existing schedules of these services.
- I. Traffic directors shall be trained flaggers of at least average intelligence, good physical condition, including sight and hearing, having mental alertness, a courteous but firm manner, neat appearance, and a sense of responsibility for the safety of the public. Traffic directors shall wear an orange or fluorescent orange garment such as a shirt, jacket, or vest. This garment shall be reflectorized for nighttime operations. When controlling traffic, traffic directors shall be equipped with a sign and a 24" x 24" red flag. At night, flagmen shall use a red light. They shall follow the procedures stipulated for flaggers in the Louisiana Manual on Uniform Traffic Control Devices.

Flagging operations are most likely required, but not limited to, the following traffic control situations:

1. When one lane is alternately used for both directions of travel;
  2. When the roadway is closed for a short period of time to allow equipment movements, blasting operations, etc.;
  3. When workers are close to a travel lane without a positive barrier;
  4. When traffic speeds must be reduced and traffic control devices alone will not get the job done;
  5. When public relations and publicity functions need to be handled at the worksite, such as explaining the situation, alerting motorists to changing conditions, and passing out handouts;
  6. When installing and removing traffic control devices;
  7. Other situations where variable conditions require responsive traffic control.
- J. Construction signing, detours, and traffic control devices shall be in accordance with roadway owner's regulations and with the Louisiana Manual of Uniform Traffic Control Devices.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Material and equipment incorporated into the Work shall:
1. Conform to applicable specifications and standards.
  2. Comply with size, make, type, and quality specified to the greatest extent possible, detailing all aspects and providing explicit reasons for parameters not in compliance and specifically approved in writing by the Engineer.
  3. Manufactured and Fabricated Products:
    - a. Design, fabricate, and assemble in accord with the best engineering and standard shop practice.
    - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
    - c. Two or more items of the same kind shall be produced, by the same manufacturer.
    - d. Products shall be suitable for service conditions.
    - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
  4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- B. The term "Product" shall refer to material and/or equipment when used in these specifications or visa versa.
- C. When material or equipment requires pre-qualification as described by Section 01030 - Alternates/Alternatives, only those materials and equipment approved prior to the bid or by addendum will be incorporated into the project.

**1.02 SUBSTITUTE MATERIAL AND EQUIPMENT**

- A. When a particular product is specified or called for, it is intended and shall be understood that the Contractor include those products in his bid. Should the Contractor desire to substitute products which he purports to be equal to those specified and not listed as an alternate/alternative prequalified product, the Contractor shall furnish the information as described in the General Conditions and described in this Section.

The substitute product(s) submitted by the Contractor shall meet the requirements of the specifications and shall, in all respects, be equal to the product's specified by name herein.

- B. Manufacturers of substitute equipment must submit through the Contractors evidence of manufacturer, installation and successful operation of their equipment. For ten (10) installations, the manufacturer shall submit the names, addresses, and telephone numbers of owners, engineers, and contractors. These installations shall be over a period of the past three (3) years. Installation shall be equal in application and operating conditions. If a manufacturer cannot meet these requirements as a result of new technology, experimental data can be submitted to meet the experience requirement.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

- C. Substitute equipment by manufacturers which cannot provide acceptable references of comparable installations in successful operation will not be allowed to provide equipment on this project.
- D. The Owner and Engineer will solely make the determination as to whether or not a proposed substitute is "equal". This determination will be made in accordance with these Contract Documents and based upon submittal data supplied by the manufacturer. Submittal data which causes the Engineer and Owner to ponder, or does not address key items of the proposed equipment will be rejected. Submittal data shall be precise concerning the equipment parts and its operation.
- E. To determine if a substitute product is equal, the following parameters shall be used:
  - 1. Function of equipment
  - 2. Capacity, size, rating
  - 3. Reliability and past performance on similar projects
  - 4. Quality control and workmanship
  - 5. Design data
  - 6. Installation and cost
  - 7. Operational costs (i.e., fuel, electrical, manpower)
  - 8. Maintenance schedules
  - 9. Guarantees
  - 10. Availability of parts and service from area reps
  - 11. Replacement costs
  - 12. Any required license fees or royalties
  - 13. Other available data
- F. Proposals for substitute material or equipment shall be made in writing to the Engineer with associated brochures and descriptive data. No substitute product may be submitted as a shop drawing, product data, or sample unless it has been previously approved by the Engineer in writing. In the case where a substitute product is approved, any modifications to the project such as design changes, construction changes, etc., shall be made at the Contractors expense. Any design modification shall be submitted to and approved by the Engineer prior to ordering or installing the substitute product.
- G. All apparatus, mechanism, equipment, machinery, and manufactured articles for incorporation into the Work shall be new and unused and the standard products of recognized reputable manufacturers.
- H. Contractor's Representation:
  - 1. A request for a substitution constitutes a representation that Contractor:
    - a. Has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified.
    - b. Will provide the same warranties or bonds for the substitution as for the product specified.
    - c. Will coordinate the installation of an accepted substitution into the Work, and make such other changes as may be required to make the work complete in all respects.
    - d. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

**1.03 APPROVAL OF MATERIALS**

- A. Only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the Work without prior approval of the Engineer.
- B. The Contractor shall submit to the Engineer, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product along with reference to the applicable section (s) of the Specifications to form an opinion as to its conformity to the Specifications. The data shall comply with Section 01340 - Shop Drawings, Product Data, and Samples and other paragraphs of this section.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, and shipped as directed at the Contractor's expense. Except as otherwise noted, the Contractor will make arrangements for and pay for the tests. Where such tests confirm compliance with the specifications, the Owner will reimburse the actual charges of the testing firm paid by the Contractor.
- D. Contractor shall submit data and samples sufficiently early to permit consideration, approval, manufacture, and delivery of materials before they are necessary for incorporation in the work. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of claim against the Owner or the Engineer.
- E. The materials and equipment used in the Work shall correspond to the approved samples or other data.

**1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION**

- A. When Contract Documents require that installation of the Work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including copies to the Engineer. One complete set of the installation instructions shall be available for use on the job site during and through completion of the Work.

Installation instructions shall be submitted in accordance with Section 01340 - Shop Drawings, Product Data and Samples.

- B. Handle, install, connect, clean, condition and adjust products as required by the manufacturer's instructions and in conformity with specified requirements.
  - 1. Should the specified requirements conflict with the manufacturer's instructions, the manufacturer's instructions shall have priority unless changes are authorized in writing by the manufacturer.
  - 2. Should job conditions conflict with the manufacturer's instructions, consult with the manufacturer for clarification.
  - 3. Clarifications of installation instructions shall be issued only by the manufacturer, shall be in writing, and shall be distributed to all parties involved in the installation as stated above and prior to alteration of the installation procedures.
  - 4. Do not proceed with the Work without clear instructions concerning the specific installation procedures.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

- C. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the manufacturer.

**1.05 SERVICES OF MANUFACTURER'S REPRESENTATIVE**

- A. From each company manufacturing or supplying equipment, the Contractor shall provide as outlined below the services of a qualified factory service representative. Equipment furnished under Divisions 11, 13, 15 and 16 shall include the costs of these services. A service representative shall be a full-time factory-trained service employee with a minimum of two (2) years field service experience. Manufacturer's sales representatives or sales agents, subcontractors to manufacturers, or similar personnel will not qualify. The service rendered by these representatives shall be at the work site for an eight (8) hour work day for each piece of equipment. The number of trips and days required for each piece of equipment stated below is as follows:

▶ Phase I - Installation

The factory service representative shall direct the contractor in the proper unloading, setting, installation, erection, storage and connection to adjacent units for their respective equipment. These services shall be for a period of not less than one (1) day. Some equipment may require additional time for the installation of major units of equipment. In this case a longer period may be mutually agreed to by the Contractor and Manufacturer. These services during the installation phase may be omitted if the installation of the equipment is not complicated. Permission for deletion of these services shall be made in writing to the Engineer prior to the delivery of the equipment with the appropriate reasons why these services are not needed for this equipment. Only after written approval has been granted by the Engineer will these services be voided. In any case, the manufacturer is responsible for the correct installation of the equipment in accordance with the manufacturer's recommended practices.

▶ Phase II - Testing

After the equipment has been properly installed by the Contractor and readied for operation, each unit of equipment together with piping, power, and controls shall be tested by a factory service representative for its intended use as outlined in the technical specifications and drawings. These services shall be a separate one (1) day minimum visit to inspect and test the unit to verify that the installation is in accordance with the recommended practice of the manufacturer.

Any calibrations, adjustments, or coordination of controls with other equipment shall be made at this time. The services of a factory service representative will be required on a consecutive day basis until the equipment has been properly tested to perform in accordance with the Contract Documents. If the equipment is not tested as required, the cost for additional visits will be paid for by the Contractor or the manufacturer.

In the presence of the Owner's representative, the Resident Project Representative and/or Engineer, the operation, testing, and adjustments shall be performed to demonstrate the equipment operates as intended.

After the site visit during this phase, the manufacturer or the supplier shall certify in writing a report (in triplicate) to the Engineer of the results of the inspection, operation and condition of the equipment. This report shall include a detailed description of tests performed and the actual performance of the equipment. Any results which would require precautions to be taken to ensure proper maintenance of the equipment should be included in the report.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

Finally, the report should include a certification that the equipment conforms to the requirements of the Contract Documents and is ready for permanent operation. Furthermore, the certification shall include a statement stating nothing in the installation or testing operations will void the manufacturer's warranty. All manufacturer's are required to provide the services outlined in this phase without exception.

► **Phase III - Start-Up, Operation and Training**

Once all equipment has been satisfactorily tested and the facility is substantially complete, the Contractor shall coordinate the concurrent start-up of all units of equipment. This coordination shall include the simultaneous attendance of the Owner's representative, the Engineer, and the factory service representative of each unit of equipment.

The factory service representative will provide for a minimum of one (1) day instruction and training for the Owner's representative in the proper operation, adjustment and maintenance of the equipment. At this time the service representative shall provide operation and maintenance manuals to the Engineer unless provided for otherwise.

- B. For equipment or products furnished under other divisions, the Contractor, unless otherwise specified, shall furnish the services of authorized representatives of the manufacturers only when some evident installation or operation problem makes such services necessary in the opinion of the Engineer.
- C. Manufacturer's Operating and Maintenance Manuals shall be delivered to the Engineer in accordance with the requirements of Section 01730.

**1.06 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of Products as required by the currently approved construction schedule coordinating each delivery to avoid conflict with other work and conditions at the site.
  - 1. Deliver products in an undamaged condition, in the manufacturer's original containers or packaging and with identifying labels intact and legible.
  - 2. Prior to accepting delivery, inspect shipments to assure compliance with approved submittals, and that the products have been properly protected and are undamaged.
- B. Provide equipment and personnel to handle products preventing soiling or damage to the products or their protective packaging.

**1.07 STORAGE AND PROTECTION**

- A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible.
  - 1. Store products subject to damage by the elements in weathertight enclosures.
  - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
  - 3. Store fabricated products above the ground, on blocking or skids, prevent soiling, staining or corrosion. Cover products which are subject to deterioration with impervious sheet coverings and provide adequate ventilation to avoid condensation.
  - 4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

- B. All materials and equipment to be incorporated in the Work shall be handled and stored in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and other injury, theft or damage.
- C. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All miscellaneous steel, structural steel and reinforcing steel shall be stored off the ground, kept free of accumulations of dirt and grease, and in areas free of standing water and minimize rusting. Precast concrete sections shall be handled and stored in a manner to prevent staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce staining, breaking, chipping, cracking, and spilling.
- D. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended, including aesthetics, shall be promptly removed from the site of the work.
- E. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections and exercise or rotate moving parts of stored products as required by the manufacturer to assure that products are maintained under specified conditions and free from damage or deterioration.
- F. Provide substantial coverings as necessary to protect installed products from damage caused by traffic and subsequent construction operations. Remove the protective covering when no longer needed.
- G. The Contractor shall be responsible for all material, equipment, and supplies sold and delivered to the Owner under this Contract until final inspection of the Work and acceptance thereof by the Owner. In the event any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance they shall be replaced by the Contractor.
- H. Should the Contractor fail to take proper action to properly store and handle equipment supplied under this Contract, the Owner retains the right to notify the Contractor in writing of the deficiencies, to correct all deficiencies and deduct the cost associated with these corrections from the Contractor's Contract. These cost may be comprised of expenditures for labor, equipment usage, administration, clerical, engineering and any other costs associated with making the necessary corrections.

**1.08    OFF-SITE STORAGE AND PROTECTION**

- A. Off-site storage arrangements shall be acceptable to the Owner and approved in writing by the Engineer for all material and equipment not incorporated into the Work but included in the application for payment. Off-site storage shall be permitted and payment made therefore if the following conditions are met:
  - 1. Protection - The material and equipment is stored in a security protected environment to avoid damage or theft by vandals.
  - 2. Insurance - Adequate insurance in accordance with Article 5 of the General Conditions shall be maintained by the Contractor and property owner of the site in which the material and equipment is stored. A minimum level of insurance shall be maintained to replace the item should it become damaged or stolen.
  - 3. Title - A title indicating the Owner has purchased the material and equipment is provided by the Contractor to the Owner after payment is made; and
  - 4. Access for Inspection - The Owner, the Engineer or their representatives have access to the site for inspection purposes. Site inspection will be conducted with the site owners.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01600 - MATERIAL AND EQUIPMENT**

1.09 **PRODUCT TESTING**

- A. All work installed in accordance with the plans and specifications, shall have post installation tests performed to check the system conformance to the specified operation. The Contractor shall file with the Engineer a standard form written report detailing the field operation of the product. The standard form reports will be furnished by the Engineer and completed by the Contractor and the Resident Project Representative.
- B. Report forms shall be listed and shown in the Appendix.

1.10 **SPECIAL TOOLS**

Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. The Contractor shall preserve and deliver to the Owner these tools and instructions in good order no later than upon completion of the Contract.

1.11 **WARRANTY**

For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740. The manufacturer's warranty period shall be concurrent with the Contractor's as stipulated in the specifications for each piece of equipment.

1.12 **SPARE PARTS**

Spare parts for certain equipment provided under Divisions 11, 13, 15 and 16 have been specified in the pertinent sections of the Specifications. The Contractor shall collect and store all spare parts so required in an area to be designated by the Engineer. In addition, the Contractor shall furnish to the Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

1.13 **GREASE, OIL AND FUEL**

All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The Owner shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item of equipment supplied.

The Contractor shall be responsible for changing the oil in all drives and intermediate drives of each mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01700 - CONTRACT CLOSEOUT**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Contractor shall comply with the requirements stated in the General Conditions and in the Specifications for administrative procedures in closing out the work.
- B. The following is a list of items required to complete the project.
  - 1. Owner may request use of substantially completed portions of the work without such use constituting acceptance. Provision should be made for consent or notification of the survey and the insurers for the project;
  - 2. Contractor to request Substantial Completion inspection of the project or a portion thereof when construction is sufficiently complete to be utilized for the purposes intended;
  - 3. Engineer, Contractor, and Resident Project Representative to make substantial completion inspection. A list of incomplete items will be prepared by the Engineer.
  - 4. Engineer will issue a Substantial Completion Certificate with a date of substantial completion with the attached list of uncompleted items. Certificate will be filed by the Owner for a prescribed period of time. Besides listing the uncompleted items, the substantial completion shall designate the responsibilities for utilities, maintenance and insurance; and any exceptions to guarantees or warranties.
  - 5. Contractor shall complete list of uncompleted items. Upon the completion of work, he shall request a final inspection.
  - 6. Final Inspection shall be made by Owner, Contractor, Engineer, Resident Project Representative, Regulatory Agencies, Funding Agency and any other agency involved in this project.
  - 7. Contractor shall make final request for payment with the appropriate data; i.e., clear-lien certificate, release from surety, etc., all as required by State Law.
  - 8. Engineer to process final payment request and present request to Owner.

**1.02 SUBSTANTIAL COMPLETION**

- A. When the Contractor considers the Work is substantially complete, he shall submit to the Engineer:
  - 1. A written notice that the Work or designated portion thereof is substantially complete.
  - 2. A list of items to be completed or corrected.
- B. Within five (5) working days after receipt of such notice, the Engineer will make an inspection to determine the status of completion. The Engineer's opinion as to the status of completion shall be based on completion of the following as applicable:
  - 1. Installation of all piping, valves, force mains, and/or gravity sewers including pressure, leakage or other required tests.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01700 - CONTRACT CLOSEOUT**

2. Installation of all equipment including, but not limited to, fans, blowers, aerators, dehumidifiers, and surge suppressors.
  3. Installation or construction of structures including all required protective or aesthetic coatings or devices including required tests.
  4. Installation of electrical conduits, wiring, load centers, controls, and all other electrical elements as required including tests, inspections, and approval by local agencies for compliance with ordinances and codes.
  5. Backfill and compaction of backfill as indicated by required tests for all structures, pipelines, conduits, and other subterranean installations.
  6. Installation or restoration of pavements including required tests for subbase, base and pavement materials, and approval by the local municipality. Pavements shall not be individually considered and shall be considered only with other portions of the Work requiring the installation or restoration of pavement.
  7. All painting required by the Contract Documents except for touch-up.
  8. Topsoiling, final grading, fertilizing, seeding, sodding, or landscaping except for growth of vegetation and watering to establish the required ground cover of vegetative growth.
  9. Release of all permits whether or not the permit was acquired by the Contractor.
  10. Installation of all doors, windows, louvers, and other building appurtenances including painting, finish hardware, glazing, locks, and other required devices to secure the Work.
  11. All required instructions for the Owner's operation and maintenance personnel including a minimum of one approved copy of the required operation and maintenance manual for use by the Owner's personnel.
- C. Should the Engineer determine that the Work is not substantially complete:
1. The Engineer will promptly notify the Contractor in writing, giving the reasons therefore in accordance with the General and Supplemental Conditions.
  2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
  3. The Engineer will reinspect the Work.
- D. When the Engineer finds that the Work is substantially complete, he will:
1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment in accordance with the General and Supplementary Conditions.
  2. After consideration of any objections made by the Owner as provided in the General and Supplemental Conditions of the Contract, and when the Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01700 - CONTRACT CLOSEOUT**

**1.03 FINAL INSPECTION**

- A. When Contractor considers the Work is complete, he shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with Contract Documents.
  - 3. Work has been completed in accordance with Contract Documents.
  - 4. Equipment and systems have been tested in the presence of the Engineer and Owner's representative and are operational.
  - 5. Work is completed and ready for final inspection.
- B. The Engineer will make an inspection to verify the status of completion with five working days after receipt of such certification.
- C. Should the Engineer consider that the work is incomplete or defective:
  - 1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
  - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Engineer that the Work is complete.
  - 3. The Engineer will reinspect the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

**1.04 REINSPECTION FEES**

Should the Engineer perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:

- A. Owner will compensate the Engineer for such additional services.
- B. Owner will deduct the amount of such compensation from the final payment to the Contractor.

**1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER**

- A. Evidence of compliance with requirements of governing authorities.
- B. Project Record Documents: Requirements of Section 01720.
- C. Manufacturer's Certificates of Installation: Requirements of Section 01600.
- D. Warranties and Bonds: Requirements of Section 01740.
- E. Keys and Keying Schedule.
- F. Spare Parts and Maintenance Materials: Requirements of Section 01730.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01700 - CONTRACT CLOSEOUT**

- G. Certificate of Insurance for Products and Completed Operations.

**1.06 FINAL ADJUSTMENT OF ACCOUNTS**

- A. Submit a final statement of accounting to the Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders
    - b. Unit Prices
    - c. Deductions for uncorrected Work
    - d. Penalties and Bonuses
    - e. Deductions for liquidated damages
    - f. Deductions for reinspection payments
    - g. Other adjustments
  - 3. Total Contract Sum, as adjusted.
  - 4. Previous Payments.
  - 5. Sum remaining due.
- C. Engineer will prepare a final Change Order reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.
- D. In accordance with the requirements of Section 01035 - Modification Procedures, the Engineer will submit the final Change Order and a recommendation for acceptance of the Work to the Owner for approval.

**1.07 APPLICATION FOR PAYMENT**

Upon receipt of approval of the final Change Order, the Contractor shall submit an Application for Payment in accordance with procedures and requirements stated in the General Conditions.

**1.08 CONTRACT CLEAR LIEN CERTIFICATE AND PAYMENT OF RETAINAGE**

- A. Upon receipt of the Owner's acceptance of the work, the Contractor shall make filings with the Recorder of Mortgages as required by Louisiana State Public Contract Statute.
- B. In accordance with the Louisiana State Public Contract Statute, the Recorder of Mortgages shall issue a Clean Lien and Privilege Certificate upon expiration of a period of not less than forty-five (45) days, provided no liens are recorded against the Project.
- C. Upon receipt of the Clear Lien and Privilege Certificate, the Contractor shall submit an Application for Payment to the Engineer requesting the release of the Project retainage with the certificate attached as evidence of authority for the Owner to pay the retainage.
- D. The Engineer shall review the Application for Payment for the Project retainage and if in order shall transmit the application to the Owner for Payment.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01700 - CONTRACT CLOSEOUT**

- E. In accordance with the General Conditions, the Owner shall release the Project retainage and make payment to the Contractor the legal sum of the retainage for which the Contractor is entitled.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01710 - SITE CLEANING**

**PART 1 - GENERAL**

1.01 REQUIREMENTS INCLUDED

Cleaning shall include daily "policing" of the work and surrounding areas to clear general debris, waste paper, wood scraps, broken concrete, and other objectionable material along with the final cleanup of site(s) required for project acceptance.

1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

3.01 DURING CONSTRUCTION

- A. Execute daily cleaning to keep the Work, the site and adjacent properties, free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
- B. Provide onsite containers for the collection of waste materials, debris and rubbish. All waste materials including containers, food debris and other miscellaneous materials must be disposed of daily in onsite containers.
- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- D. Prior to final completion or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that the entire Work is clean.
- E. Apply a finished paint coat per Section 09900 to all equipment incorporated into the project. Final finish coat of paint shall be applied after equipment has been installed.

3.03 FUELING

- A. Upon servicing all equipment, all fuel storage and equipment tanks shall be filled to completion.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01720 - PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

1.01 **REQUIREMENTS INCLUDED**

- A. Maintain at the site for the Owner one record copy of:
  - 1. Conformed Drawings.
  - 2. Conformed Specifications.
  - 3. Change Orders and other Modifications to the Contract.
  - 4. Engineer's Field Orders or written instructions.
  - 5. Approved Shop Drawings, Working Drawings and Samples.
  - 6. Field Test records.
  - 7. Construction photographs.
  - 8. Latest, Approved Progress Schedule.

1.02 **MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
  - 1. Provide files and racks for storage of documents.
  - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI section numbers.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all items for inspection by the Engineer.
- E. As a pre-requisite for monthly progress payments, the Contractor is to exhibit the currently updated "record documents" for review by the Engineer and Owner.

1.03 **MARKING DEVICES**

Provide felt tip marking pens for recording information in the color code designated by the Engineer.

1.04 **RECORDING**

- A. Label each document "PROJECT RECORD" with rubber stamp.
- B. Record information concurrently with construction progress and do not conceal any work until required information is recorded.
- C. Legibly mark drawings to record actual construction:

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01720 - PROJECT RECORD DOCUMENTS**

1. The Contractor shall use the following color code in marking Contract Drawings.
    - a. Yellow for no change.
    - b. Red to indicate additions, deletions and changes.
  2. Elevations of various structure elements in relation to elevation datum.
    - a. Elevations referenced to control points established by the Owner's agent.
    - b. Specifically, elevations of drainage culvert inverts, building slabs, top of roadway and driveway curbs, bridges, etc.
  3. All underground piping with elevations and dimensions, changes to piping location, horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements, actual installed pipe material, class, etc.
    - a. Elevations of constructed underground piping at 100 ft. increments and points where changes occur in either the slope or horizontal direction.
    - b. Three swing ties from referenced permanent surface improvements to the pipe centerline at 500 ft. increments and the center of each manhole cover, valve, wye branch, vent, end of service connection at the property line, other fittings and appurtenances.
    - c. Identify existing utilities which parallel the proposed construction, including size and offset distance horizontally and vertically, when exposed by the construction activity.
    - d. Identify existing utilities including size, material type, vertical clearance over or under, intersecting station, and angle of intersection crossing proposed construction.
  4. Location of internal utilities and appurtenances concealed in the construction by referencing to visible and accessible features of the structure.
  5. Field changes of dimension and detail.
  6. Changes made by Field Order or by Change Order.
  7. Details not on original contract drawings.
  8. Equipment and piping relocations.
  9. Identify the actual motor installed by manufacturer's name, nameplate horsepower and serial number.
  10. Identify the actual pump installed by manufacturer's name, model number, impeller size, rated capacity and serial number.
  11. Major architectural and structural changes including relocation of doors, windows, etc.
- D. Specifications and Addenda; Legibly mark each Section to record:
1. Manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.
  2. Changes made by Field Order or by Change Order.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01720 - PROJECT RECORD DOCUMENTS**

E. Shop Drawings (after final review):

Five (5) sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

F. Certified site survey and line elevations and stationing at 100 ft. increments and all points of change of direction of pipelines per Section 01050 by a registered land surveyor.

1.05 **SUBMITTAL**

A. At Contract close-out, deliver Record Documents to the Engineer for the Owner.

B. Accompany submittal with transmittal letter in duplicate containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor or his authorized representative.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01730 - OPERATING AND MAINTENANCE DATA**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under Contract.
  - 1. Prepare operating and maintenance data as specified herein and as referenced in other pertinent sections of Specifications.
  - 2. Submit operating and maintenance manuals as specified herein.
- B. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

**1.02 QUALITY ASSURANCE**

- A. Preparation of data shall be done by personnel:
  - 1. Trained and experienced in maintenance and operation of described products.
  - 2. Familiar with requirements of this Section.
  - 3. Skilled in technical writing to the extent required to communicate essential data.
  - 4. Skilled as draftsman competent to prepare required drawings.

**1.03 FORM OF SUBMITTALS**

- A. Prepare data in form of an operating and maintenance manual for use by Owner's personnel.
- B. Format:
  - 1. Size: 8 1/2 inches x 11 inches, punches and reinforced for insertion into the binders.
  - 2. Paper: 20 pound minimum white, for typed pages.
  - 3. Text: Manufacturer's printed data, or neatly typewritten.
  - 4. Drawings:
    - a. Provide reinforced punched binder tabs, bind in with text.
    - b. Reduce larger drawings and fold to size of text pages but not larger than 11 inches x 17 inches.
  - 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
    - a. Provide typed description of product, and major component parts of equipment.
    - b. Provide indexed tabs.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01730 - OPERATING AND MAINTENANCE DATA**

6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS" List:
  - a. Title of Project.
  - b. Identity of separate structure as applicable.
  - c. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality three-post binders with durable and cleanable plastic covers.
2. Maximum post width: 2-inches, D-ring.
3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 **CONTENT OF OPERATING AND MAINTENANCE MANUAL**

- A. A complete neatly typewritten table of contents listing documents in all volumes shall be included and arranged in systematic order.
  1. Contractor, name of responsible principal, address and telephone number.
  2. A list of each product required to be included, indexed to content of the volume.
  3. List, with each product, name, address and telephone number of:
    - a. Subcontractor or installer.
    - b. Maintenance contractor, as appropriate.
    - c. Identify area of responsibility of each.
    - d. Local source of supply for parts and replacement.
  4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
  1. Include only those sheets which are pertinent to the specific product.
  2. Annotate each sheet to:
    - a. Clearly identify specific product or part installed.
    - b. Clearly identify data applicable to installation.
    - c. Delete references to inapplicable information.
- C. Drawings:
  1. Supplement product data with drawings as necessary to clearly illustrate:
    - a. Relations of component parts of equipment and systems.
    - b. Control and flow diagrams.
  2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
  3. Do not use Project Record Documents as maintenance drawings.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01730 - OPERATING AND MAINTENANCE DATA**

- D. Written text, as required to supplement product data for the particular installation:
  - 1. Organize in consistent format under separate headings for different procedures.
  - 2. Provide logical sequence of instructions of each procedure.
- E. Copy of each warranty, bond and service contract issued and provide information sheet for Owner's personnel, giving proper procedures in the event of failure and instances which might affect the validity of warranties or bonds.
- F. Provide for each unit of equipment and system, as appropriate:
  - 1. Description of unit and component parts.
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data and tests.
    - c. Complete nomenclature number of replaceable parts including standard or manufacturer's part.
  - 2. Operating procedures:
    - a. Start-up, break-in, routine and normal operating instructions.
    - b. Regulation, control, stopping, shutdown and emergency instructions.
    - c. Summer and winter operating instructions.
    - d. Special operating instructions.
  - 3. Maintenance Procedures:
    - a. Routine operations.
    - b. Guide to "troubleshooting".
    - c. Disassembly, repair, and reassembly.
    - d. Alignment, adjusting and checking.
  - 4. Servicing and lubrication schedule including a list of lubricants required.
  - 5. Manufacturer's printed operating and maintenance instructions.
  - 6. Description of sequence of operation by control manufacturer.
  - 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance including the following:
    - a. Predicted life of parts subject to wear.
    - b. Items recommended to be stocked as spare parts.
  - 8. As-installed control diagrams by controls manufacturer.
  - 9. Each contractor's coordination drawings including as-installed color coded piping diagrams.
  - 10. Charts of valve tag numbers, with location and function of each valve.
  - 11. Cataloged list of manufacturer's spare parts supplied with the equipment or system, manufacturer's current prices, and recommended quantities to be maintained in storage.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01730 - OPERATING AND MAINTENANCE DATA**

12. Other data as required under pertinent sections of Specifications.
- G. Content, for each electric and electronic system, as appropriate:
  1. Description of system and component parts.
    - a. Function, normal operating characteristics, and limiting conditions.
    - b. Performance curves, engineering data and tests.
    - c. Complete nomenclature including standard or manufacturer's part number of replaceable parts.
  2. Circuit directories of panelboards.
    - a. Electrical service.
    - b. Controls.
    - c. Communications.
  3. As-installed color coded wiring diagrams.
  4. Operating procedures:
    - a. Routine and normal operating instructions.
    - b. Sequences required.
    - c. Special operating instructions.
  5. Maintenance procedures:
    - a. Routine operations including recalibration procedures.
    - b. Guide to "troubleshooting".
    - c. Disassembly, repair and reassembly.
    - d. Adjustment and checking.
  6. Manufacturer's printed operating and maintenance instructions.
  7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
  8. Other data as required under pertinent sections of specifications.
- H. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- I. Additional requirements for operating and maintenance data as required by the respective sections of the Specifications.

**1.05 SUBMITTAL SCHEDULE AND REQUIREMENTS**

- A. Submit two (2) copies of preliminary draft of proposed formats and outlines of contents of Operating and Maintenance Manual within thirty (30) days of first Engineer review of shop drawings for each equipment item. The Engineer will review the preliminary draft and return one copy with comments.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01730 - OPERATING AND MAINTENANCE DATA**

- B. Submit five (5) copies of the final manual to the Engineer within thirty (30) calendar days of product shipment to the project site and preferably within thirty (30) days after the reviewed copy is received.
- C. Submit five (5) copies of any addenda to the Operating and Maintenance Manual as applicable with certificates as specified in Article 1.05 of Section 01600 within thirty (30) days after final inspection and start-up.

1.06 **INSTRUCTION OF OWNER'S PERSONNEL**

- A. Prior to initial start-up inspection or request for substantial completion, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems. Refer to Article 1.05 of Section 01600.
- B. Operating and maintenance manual shall constitute the basis of instruction and shall review comments of manual with personnel in full detail to explain all aspects of operation and maintenance.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

***END OF SECTION***





**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01740 - WARRANTIES AND BONDS**

**PART 1 - GENERAL**

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds, as in Articles 5 and 13 of the General Conditions.
- B. Co-execute submittals when so specified.
- C. Review submittals to verify compliance with Contract Documents.
- D. Submit to the Engineer for review and transmittal to Owner.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble and include warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors including effective dates as required by Section 01730, Operation and Maintenance Data, in the required operation and maintenance manuals.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed in orderly sequence. Provide complete information for each item.
  - 1. Product or work item.
  - 2. Firm, with name of principal, address and telephone number.
  - 3. Scope.
  - 4. Date of beginning warranty, bond or service and maintenance contract.
  - 5. Duration of warranty, bond or service maintenance contract.
  - 6. Provide information for Owner's personnel:
    - a. Proper procedure in case of failure.
    - b. Instances which might affect the validity of warranty or bond.
  - 7. Contractor, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
  - 1. Size: 8 1/2 inches x 11 inches, punch sheets for standard 3-post binder.
    - a. Fold larger sheets to fit into binder.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 01 - GENERAL REQUIREMENTS**

**SECTION 01740 - WARRANTIES AND BONDS**

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS" List:
  - a. Title of Project.
  - b. Name of Contractor.
- C. Binders - Commercial quality three-post binders with durable and cleanable plastic covers and maximum post width: 2-inches, D-ring.

**1.04 WARRANTY SUBMITTAL REQUIREMENTS**

- A. For all major pieces of equipment, unless stated otherwise in the specifications for each individual item of equipment, submit a written warranty from the equipment manufacturer to replace promptly any equipment or component thereof which, in the sole opinion of the Engineer, has defects in design, workmanship, materials, or performance within a one (1) year period following the date of acceptance for operation (Substantial Completion) by the Owner. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year, unless otherwise specified, commencing at the time of acceptance for operation (beneficial use) by the Owner and shall be read in conjunction with the Contractor's warranty which shall operate together to provide for replacement of defective equipment and restoration of proper operation. The Contractor shall be solely responsible for both warranties.
- B. The Contractor shall obtain manufacturer's warranties for all equipment which has 1 HP motor or larger and/or which lists for more than \$1,000.00. The Engineer reserves the right to request warranties for equipment not so classified. The Contractor shall warrant all equipment in the Contract one-year warranty period even though manufacturer's warranties may not be required.
- C. In the event that the Contractor is unable to obtain from an equipment manufacturer or supplier the above one-year warranty, the Contractor shall provide, prior to acceptance for operation of the equipment by the Owner, a bank letter of credit in favor of the Owner in the amount of two-hundred percent (200%) of the purchase price of the equipment for a period of 18 months from the beginning of the warranty period on which the Owner may draw for replacement of defective equipment (materials and labor).

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **DIVISION 2 - SITE CONSTRUCTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02060 - CRUSHED STONE**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This item shall consist of furnishing, spreading, and/or spot dumping of crushed stone in the quantities required and at location shown on the Plan Drawings or as designated by the Project Engineer.

**PART 2 - PRODUCTS**

2.01 MATERIALS

- A. Crushed stone shall:

1. Be from an approved source.
2. Not show more than forty five percent (45%) abrasion loss when tested in accordance with AASHTO Designation T96.
3. Show no more than fifteen percent (15%) soundness loss when subjected to five (5) cycles of the magnesium sulfate test in accordance with AASHTO Designation T104.
4. Meet the following gradation:

<u>U.S. Sieve</u>	<u>SPR#3</u>	<u>Percent Passing</u> <u>2½ x 0 RBA</u>	<u>#610</u>	<u>#57</u>
3"	---	100	—	---
2½"	100	90-100	—	---
2"	85-95	85-100	—	---
1½"	35-70	70-90	100	100
1"	0-10	50-70	90-100	95-100
¾"	---	45-60	70-95	---
½"	0-5	30-50	50-80	25-60
No. 4	---	20-40	30-65	0-10
No. 8	---	15-30	—	---
No. 10	---	---	25-50	---
No. 16	---	5-25	—	---
No. 40	---	0-15	10-26	---
No. 100	---	0-10	—	---
No. 200	---	---	4-12	---

- B. The fraction of stone passing the No. 40 sieve shall be non-plastic.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02060 - CRUSHED STONE**

**PART 3 - EXECUTION**

3.01 **GENERAL**

- A. Crushed stone shall be placed at any location and to any depth within the project limits as directed by the Engineer.
- B. The stone shall be placed directly on the prepared and approved subgrade from hauling vehicles or spreading equipment. No stone shall be placed on damaged subgrade until repairs have been completed and approved.
- C. Stone shall not be placed or spread on adjacent concrete or asphaltic concrete pavements. Placement shall be such that pavement surfaces, edges, and joints are not damaged.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02230 - SITE CLEARING**

**PART 1 - GENERAL**

1.01 SCOPE OF WORK

- A. This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the Plans or as required by the Engineer.
- B. Clearing shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.
- C. Clearing, when so designated, shall consist of the cutting and removal of isolated single trees or isolated groups of trees. The cutting of all the trees of this classification shall be in accordance with the requirements for the particular area being cleared, or as shown on the Plans, or as directed by the Engineer. The trees shall be considered isolated when they are forty feet (40') or more apart, with the exception of a small clump of approximately five (5) trees or less.
- D. Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fence structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the Engineer is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing by burning or otherwise.

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

**PART 3 - EXECUTION**

3.01 GENERAL

- A. The areas to be cleared or cleared and grubbed shall be indicated on the Drawings.
- B. The removal of existing structures and utilities shall be performed in accordance with Section 02221.
- C. Fences shall be removed when indicated on the Drawings. Fence wire shall be neatly rolled and the wire and posts stored on the site if they are to be used again. If the fencing is to remain the property of the Owner, the Contractor shall store at a designated location selected by the Owner.
- D. Blasting shall not be allowed unless requested by the Contractor and approved in writing by the Engineer and Owner.
- E. If the saving of merchantable timber is required, the Contractor shall trim the limbs and tops from designated trees, saw them into suitable lengths, and make the material available for removal by others.
- F. Trees shall be felled toward the center of area being cleared in order to minimize damage to trees that are to be left standing. Trees unavoidably falling outside the specified limits must be cut up, removed, and disposed of in a satisfactory manner. Care shall be taken to protect and preserve

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02230 - SITE CLEARING**

all trees not to be removed.

**3.02    CLEARING**

- A. When isolated trees are designated for clearing (unit price contracts), the trees shall be classed in accordance with the butt diameter size as measured at a point eighteen inches (18") above the ground level or at a designated height specified in the Plans.

**3.03    CLEARING AND GRUBBING**

- A. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed, except where embankments exceeding three and one-half feet (3½') in depth are to be made outside of paved areas. In cases where such depth of embankments is to be made, all unsatisfactory materials shall be removed, but sound trees and stumps can be cut off within six inches (6") above the ground and allowed to remain. Tap roots and other projections over one and one-half inches (1½") in diameter shall be grubbed out to a depth of at least eighteen inches (18") below the finished subgrade or slope elevation.
- B. All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required in Section 02315. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

**3.04    DISPOSAL OF UNSUITABLE MATERIAL**

- A. All soil materials removed by clearing or by clearing and grubbing may be disposed of by burning when permitted by state and local laws, or by removal to approved disposal areas or landfills. When burning of material is permitted, it shall be burned under the constant care of competent watchmen so that the surrounding vegetation and other adjacent property will not be jeopardized. Burning shall be done in accordance with all applicable laws, ordinances, and regulations. Before starting any burning operations, the Contractor shall notify the agency having jurisdiction.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02310 - ROUGH AND FINISH GRADING**

**PART 1 - GENERAL**

1.01 SCOPE:

- A. This section consists of the requirements for rough and finish grading including all labor, equipment, materials, and appurtenances as indicated on the Drawings and specified herein.
- B. Related Sections
  - 1. Section 02220 - Site Demolition
  - 2. Section 02221 - Building Demolition
  - 3. Section 02230 - Site Clearing
  - 4. Section 02315 - Excavation, Backfilling, and Compaction
  - 5. Section 02920 - Seeding, Fertilizer and Agricultural Lime

1.02 SUBMITTALS:

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.03 PROJECT CONDITIONS:

- A. Protect above-and below-grade utilities that remain.
- B. Protect plants, lawns, trees, and other features to remain as a portion of final landscaping.
- C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, curbs, etc. from excavation equipment and vehicular traffic.

**PART 2 - PRODUCTS**

2.01 MATERIALS:

A. TOPSOIL

Topsoil shall:

- 1. Be a workable, loamy soil, free of debris, refuse and similar foreign matter, and reasonably free of subsoil, hard lumps, gravel and other such materials.
- 2. Have a minimum PI of 4 and a maximum PI of 12.
- 3. Have a pH of 5.5 - 8.0.
- 4. Have a minimum organic content of 3 per cent.
- 5. Be capable of supporting adequate vegetation.

B. OTHER FILL MATERIALS

- 1. Other fill materials shall comply with Section 02315.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02310 - ROUGH AND FINISH GRADING**

**PART 3 - EXECUTION**

3.01 EXAMINATION:

- A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION:

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Protect utilities that remain from damage.
- D. Notify utility company to remove or relocate utilities (as applicable).

3.03 ROUGH GRADING:

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. See Section 02315 for filling procedures.
- G. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key fill material to slope for firm bearing.
- H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL AND STOCKPILING:

- A. Stockpile topsoil to be re-used on site; remove remainder from site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.

3.05 FINISH GRADING:

- A. Before Finish Grading:
  - 1. Verify building and trench backfilling have been inspected.
  - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02310 - ROUGH AND FINISH GRADING**

- C. Where topsoil is to be placed, scarify surface to depth of 3 inches.
- D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 6 inches.
- E. Place topsoil in areas where seeding, sodding and planting are indicated.
- F. Place topsoil in areas indicated to a nominal depth of six (6) inches.
- G. Place topsoil where required to level finish grade.
- H. Place topsoil to thickness specified (2" minimum).
- I. Place topsoil during dry weather.
- J. Remove roots, weeds, rocks, and foreign material while spreading.
- K. Near plants, buildings, and structures, spread topsoil manually to prevent damage.
- L. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- M. Lightly compact placed topsoil.

3.06 **TOLERANCES:**

- A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.
- B. Top Surface of Finish Grade: Plus or minus ½ inch.

3.07 **FIELD QUALITY CONTROL:**

- A. See Section 02315 for compaction density testing.

3.08 **CLEANING AND PROTECTION:**

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive landscaping.

**END OF SECTION**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to perform all excavation, backfill, grading, and wall protection required to complete the structure and piping work shown on the Drawings and specified herein. The work shall include, but not necessarily be limited to excavation, filling and grading under and around precast and cast-in-place structures to attain the subgrades and grades indicated on the Drawings; trenching operations to install pipe, manholes, vaults, electrical duct conduit, pump station wet wells and valve pits, and other structures, including all backfilling, grading, disposal of surplus and unsuitable materials; and all related work such as sheeting, bracing, and water handling.

**1.02 QUALITY ASSURANCE**

The Contractor shall perform excavation work in compliance with applicable requirement codes and standards of governing authorities having jurisdiction.

The Owner will engage and pay for soil testing and inspection services for quality control testing during earthwork operations as provided in other sections of this specification.

**1.03 JOB CONDITIONS**

A. The Contractor shall examine the site and review the available test borings or undertake his own soil borings prior to submitting his Bid, taking into consideration all conditions that may affect his work. The Owner and Engineer will not assume responsibility for variations of subsoil quality or conditions at locations other than places shown and at the time the investigation was made. Boring log data, if available, may be reviewed or purchased at the office of the Engineer.

B. Existing Utilities

Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

1. The location of all pipes, ducts, or underground structures is not warranted to be exact, nor is it warranted that all underground pipes, ducts, or structures are shown. If the project is located in Louisiana the Contractor shall contact LA One Call or the appropriate utility company for location of their underground service a minimum of seventy-two (72) hours prior to beginning construction in each area. If the project is located in another state, Contractor shall contact similar agencies to locate underground existing utilities. It is the Contractor's responsibility to verify and locate all utilities in the field at no additional cost to the Owner.
2. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner or make the site available to the utility owner for his work crews to make the necessary repairs at no additional cost to the Owner.
3. Demolish and completely remove from site existing underground utilities indicated on the Drawings to be removed.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)**

4. Examine the areas and conditions under which excavating, filling, and grading are to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.
5. Examine existing grade of walks, pavements, and steps prior to commencement of work and report to Engineer if elevations of existing subgrade vary from elevations shown on Drawings.
6. If it is determined that existing utilities are to be relocated by owner of those utilities, the Contractor shall be responsible for that coordination. The Contractor shall notify the utility owner in sufficient time as to avoid any delays to the Contractor's schedule. The Contractor is solely responsible for this coordination, and no delay or extension of time will be allowed as a result of or the cause of inaction by the Contractor or utility owner.

**1.04    PROTECTION**

- A. Slope sides of excavations to comply with OSHA regulation and any applicable local codes and ordinances. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- B. Sheeting and Bracing in Excavations
  1. In connection with construction of below grade structures and piping, the Contractor shall construct, brace, and maintain cofferdams consisting of sheeting and bracing as required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction, and to protect adjacent structures, existing yard piping and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed they shall be immediately filled and rammed.
  2. Trench sheeting for pipes is not to be withdrawn when driven below mid-diameter of any pipe, and no wood sheeting shall be cut off at a level lower than one foot (1') above the top of any pipe unless otherwise directed by the Owner. If during the progress of the work the Owner decides that additional wood sheeting should be left in place, he may direct the Contractor in writing and the Contractor shall be reimbursed in accordance with the Bid Documents. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given for an alternate method of removal.
  3. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, existing utilities, existing piping, or personnel and property. Unless otherwise approved or indicated on the Drawings or in the Specifications, all sheeting and bracing may be carefully removed after completion of the substructure. Care shall be taken not to disturb or otherwise injure any finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by hydraulic compaction or otherwise as may be directed.
  4. The right of the Owner to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders, and his failure to exercise his right to do so shall not relieve the Contractor from liability for damages to persons or property occurring from or on the Work occasioned by negligence or other cause, growing out of a failure on the part of the Contractor to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.

**TECHNICAL SPECIFICATIONS**  
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5. The Contractor may construct the cofferdams and sheeting outside the neat lines of the foundation for pipes and manholes, unless indicated otherwise, to the extent he deems it desirable for his method of operation. Sheeting shall be plumb and securely braced and tied in position. Sheeting, bracing, and cofferdams shall be adequate to withstand all pressures to which the existing or new structure will be subjected. Pumping, bracing, and other work within the cofferdam shall be done in a manner to avoid disturbing any completed construction or personnel injury. Any movement or bulging which may occur shall be corrected by the Contractor so as to provide the necessary clearances and dimensions.
6. The Contractor is fully responsible for any sheeting, bracing and cofferdams that are required to perform any of the work under the Contract. As part of his submittal of schedules and other data indicating his planning of the work, the Contractor shall provide drawings of the planned supporting system, not for review by the Owner but for informational purposes only and use by the Owner in tracking the progress of the work. Such drawings shall be of sufficient detail to adequately disclose the method of operation that the Contractor plans to use for each of the various stages of construction. The work shall not be started until such drawings are received.
7. Establish requirements for trench shoring and bracing to comply with OSHA regulations and any applicable local codes and ordinances.
8. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
9. As an alternate to sheeting, the Contractor is authorized to utilize a mechanical trench box, the size and construction of which shall be submitted to the Owner for review.

**C. Dewatering, Drainage, and Flotation**

1. The Contractor shall furnish all materials and equipment and perform all work required to install and maintain the drainage systems he proposes for handling groundwater and surface water encountered during construction of structures, pipelines, and compacted fills.
2. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding, and base course in-the-dry. In addition, the Contractor shall make the final twenty-four inches (24") of excavation for this work in-the-dry, and not until the water level is a minimum of twelve inches (12") below proposed bottom of excavation.
3. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to promptly remove and dispose of all water entering excavations and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition, until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
4. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
5. Wellpoints may be required for predrainage of the soils prior to final excavation for some of the deeper below-ground structures or piping, and for maintaining the lowered groundwater level, until construction has been completed to such an extent that the structure, pipeline, or fill will not be floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter

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sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.

6. If requested by the Owner, the Contractor's proposed method of dewatering shall include a minimum of two (2) four inch (4"), Schedule 40, operating groundwater observation wells at each structure to be used to determine the water level during construction of the structure. Locations of the observation wells shall be at structures and along pipelines as approved by the Owner prior to their installation.
7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the Owner. The Contractor shall be responsible for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance or natural bearing of soils or damage to structures caused by an inadequate dewatering system or by interruption of the continuous operation of the system as specified.
8. As part of the submittal of his dewatering system, the Contractor may be required to demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil particles in a one (1) quart sample.
9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the Owner.
10. Continuous pumping will be required as long as water levels are required to be below natural levels.
11. While dewatering for new construction in the vicinity of existing structures, depletion of the groundwater level underneath these existing structures may cause settlement. To avoid this settlement, the groundwater level under these structures shall be maintained by appropriate methods of construction.

**D. Protection of Persons and Property**

1. Barricade open excavations occurring as part of this work and post with warning lights in accordance with local requirements. Operate warning lights as recommended by authorities having jurisdiction.
2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining washout and other hazards created by earthwork operations.

**PART 2 - PRODUCTS**

**2.01 SOIL**

**A. Definitions**

1. Select Material - Select material shall conform to LA DOTD designation TR 423 Classes A-I-a, A-I-b, A-3, A-2-4, A-2-6, A-4, or A-6 having a maximum liquid limit of thirty-five (35) and a maximum plasticity index of fifteen (15). This material is referred to as "selected soils" in the



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DOTD Specifications. Based on an approved geotechnical engineering report, particularly A-6 soils, a higher plasticity index of up to twenty-five (25) will be considered.

2. Bedding Materials - Bedding material shall be #610 Limestone. The limestone shall be one hundred percent (100%) quarried. The stone shall pass the soundness test and abrasion test. Soundness loss shall not exceed fifteen percent (15%) when subjected to five (5) cycles of the magnesium sulfate soundness test in accordance with AASHTO 104. The stone shall show an abrasion loss of not more than forty percent (40%) when tested in accordance with AASHTO 96.
3. Stabilization Materials - Stabilization materials shall be a blended, manufactured aggregate conforming to the requirements for concrete aggregate as stated in ASTM C33 except for gradation which shall be between sizes seventy-eight (78) and fifty-seven (57) (inclusive) as specified in ASTM D448.
4. Special Stabilization Materials - Where special stabilization materials are required by the Engineer or called for under a specific Bid Item, the following specification shall apply:

4.1 General

The special stabilization material shall be "Perma-Soil" soil stabilizer or approved alternate. This is a product which will dry, strengthen, and bond soils so as to increase the load-bearing properties of the soil while minimizing subsidence, without exceeding a compressive strength which would prevent easy re-excavation. It should exhibit quick setting properties. This special stabilization material, when required, shall be used to a depth of five feet (5'), or maximum portion thereof for excavations of less than five feet (5') in depth, not to extend below the depth of the top of the pipe.

4.2 Performance Characteristics

- A. All soils treated with the stabilizer and routinely compacted shall attain unconfined compressive strengths greater than the same soils which are untreated and compacted to ninth-five percent (95%) modified proctor of the maximum laboratory dry density.
- B. Treated soil should attain a California Bearing Ratio (CBR) of fifty (50) or greater when used in accordance with manufacturer's instructions.
- C. Treated soil shall gain in compressive strength and maintain their size and shape when subjected to damp environments.
- D. Treated soils shall attain sufficient strength to allow for repaving, removal of any traffic control devices and provide for the return to normal traffic on any site where the stabilizer is used within one (1) hour or less of the final compaction lift, when used in accordance with manufacturer's instructions.
- E. Treatment of soil will create less than 10 F exothermic reaction, so as to prevent possible damage to pipe or other underground conduits, plant, or animal life. The stabilizer shall not pose a threat of thermal injury to workers, nor will it cause the ground to expand after compaction which would prevent immediate re-paving.

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- F. The stabilizer shall be environmentally safe and shall not exceed EPA standards for ingestion or inhalation, nor cause hazards to work crews or the environment.
- G. The stabilizer will be non-corrosive to underground pipe and other conduits.
- H. The stabilizer shall be packaged in water-tight, puncture-resistant fifty pound (50 lb.) pail type containers to provide ease of handling and storage. Alternate products must be available in containers of a size and weight to allow for ease of handling by one (1) person.

**4.3 Specific Mixing Instructions**

It is the Contractor's responsibility to insure that proper, updated application instructions from the manufacturer are being followed. The instructions included below are representative of the procedure to be followed, but must be certified as correct by the manufacturer prior to use of the product.

- A. Survey moisture content - All soils must have a minimum of seven percent (7%) moisture content. A quick field check is to squeeze a hand full of soil into a ball; if it retains its shape the minimum is present. The only exception to this moisture content is in clay soils without silt or sand (when rubbed between thumb and forefinger this clay will shine). To field test, roll a sample between the hands; it should elongate into a roll, without breaking down to one-half inch ( $\frac{1}{2}$ " ) diameter. Should it break before reaching one-eighth inch ( $\frac{1}{8}$ " ) diameter it is too dry and more water should be added.
- B. Determine mixture amount - In all soils a minimum mix of one (1) pail fifty pounds (50 lbs.) per cubic yard is required; if the soil is super saturated with moisture it should have two (2) pails per cubic yard. The clay soil identified above will require some special action to ensure proper reaction. This soil should be broken up with the proper equipment into pieces two inches (2") to three inches (3") in diameter and completely covered with Perma-Soil stabilizer. If this is done the proper ratio will be obtained, for this soil type. (Perma-Soil stabilizer will assist breaking up the clay structure as it is mixed into the soil.)
- C. Mixing - Mixing should be accomplished with a backhoe or front end loader, where available. When working in clay soil without silt or sand content the procedure described in paragraph two (2) above is necessary to obtain proper reaction and ensure proper mixture ratio of stabilizer to soil. In all other cases the last two (2) lifts, or twelve inches (12") of spoil, should have a higher ratio of stabilizer added to the soil. This is done by holding back one (1) pail to be added and mixed immediately prior to compaction of the last twelve inches (12"). It is not necessary to allow more curing of this spoil.
- D. Curing instructions - This mixture should be allowed to set from forty-five (45) minutes to one (1) hour for curing, or until the mixture becomes compatible. A field check is to squeeze a hand full of soil into a ball. When dropped from waist high it should break into two (2) or three (3) pieces to be at its best compatible state. If it shatters it is too dry. If it stays in one (1) piece and deforms on impact, it is too wet. When this is completed the material is ready to be compacted back in the repair site. Heavy clay soils may take longer to become compactible.

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- E. Compaction of the spoil - The material should be replaced in the repair site in six inch (6") to eight inch (8") lifts and compacted so that all air voids are removed. Gasoline rammers and hydraulic tampers, can be used to accomplish compaction.

*NOTE: VIBRATORY PLATE COMPACTORS ARE NOT SUITABLE FOR COMPACTION EXCEPT FOR OVERLAY MATERIAL OR GRANULAR (NONCOHESIVE SOILS AND THEN ONLY IN THIN LIFTS). COMPACTION WITH THE BACKHOE BUCKET OR ANY OTHER HEAVY APPARATUS NOT DESIGNATED SPECIFICALLY FOR SOIL COMPACTION IS NOT ALLOWED.*

- F. Overlaying the repair - When compaction is completed the repair site may be overlaid with overlay material immediately. Traffic should be kept from traveling over the repair site for a minimum of one (1) hour after compaction, or until the overlay material has cured.

5. Sand-Clay-Gravel - Sand-clay-gravel shall be composed of either a natural mixture of sand, clay and gravel, or an artificial mixture prepared by either the mixing of washed sand-gravel and binder; washed gravel or crushed stone, sand and binder; or by the addition of washed gravel or crushed stone to natural sand-clay-gravel. It shall be free from an excess of soft or disintegrated pieces, alkali, adobe, vegetable matter, or other deleterious substances and shall be of such quality that it will compact thoroughly when watered and rolled to form a firm, well bonded surfacing.

5.1 Physical Requirement

When sampled and tested in accordance with standard test methods, the aggregate shall meet the following requirements:

- a. Combined Gradation: When tested in accordance with ASTM C136, or AASH T27, the material shall meet the following sieve analyzes:

<u>Sieve Sizes</u>	<u>Percent Passing</u> <u>(By Weight)</u>	
Grade A		
Grade B		
2½"	100	100
1½"	85-100	85-100
No. 4	40-60	50-75
No. 40	20-45	20-50
No. 200	10-20	12-25

- b. Plasticity Index: When tested in accordance with ASTM D424, or AASHO T90, the plasticity index of the material passing the No. 40 Sieve shall not be more than six (6) nor less than two (2).
- c. Liquid Limit: When tested in accordance with ASTM D423, or AASHO T89, the liquid limit of the material passing the No. 40 Sieve shall be not more than twenty-five percent (25%).

Either grade may be used unless otherwise shown on the plans or specified in the Special Provisions.

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As a matter of information, but not limitation, the several materials may be combined in approximately the following proportions:

	Grade A	Grade B
Gravel or crushed stone, Percent	45	35
Sand, Percent	40	47½
Binder, Percent	15	17½

However, the exact proportion by volume shall be determined by an approved testing laboratory from test samples of the materials proposed to be used.

Gravel and crushed stone shall conform to Section 101 of the Standard Specifications for Public Works Construction. Sand shall comply with the applicable provisions of paragraph 1.21.

Binder material shall not have a plasticity index in excess of the plasticity index indicated above for the terminal product.

6. Usable Excavated Soils: Usable excavated soils, referred to as "usable soils" in LA DOTD specifications, shall conform to Classes A-I-a, A-I-b, A-2-4, A-2-5, A-2-6, A-2-7, A-3, A-4, A-5, A-6, A-7-5, and/or A-7-6, except that soils in Classes A-5, A-6, A-7-5, and A-7-6 which are considered unusable by the Owner and any soil with a plasticity index exceeding sixty (60) will not be accepted in accordance with paragraph 203.06 in the DOTD Specifications. These materials can be used for backfill from twelve inches (12") above the top of the pipe up to the surface in unimproved areas.
7. Soil classifications used herein are to be in accordance with the AASHM table for "Classification of Soils and Soil-Aggregate Mixtures (With Suggested Subgroups)" as shown on LA DOTD designation TR423.

**B. General**

1. Materials for use as fill and backfill shall be as described above. The Contractor shall notify the Owner of the source of each material and shall furnish to the Owner for testing and approval, a representative sample of each material weighing approximately fifty pounds (50 lbs.), at least ten (10) calendar days prior to the date of anticipated use of such material.
2. Additional materials shall be furnished as required from off-site sources and hauled to the site.
3. Disposal of unsuitable material is specified in this Section, paragraph 3.07.

**C. Structural Fill**

1. Structural fill shall be used below spread footing foundations, slab-on-grade floors, and other portions of structures, except that, when stabilization layers or courses are shown on the Drawings, stabilization material shall be placed and compacted over the structural fill material in accordance with the requirements for the structural fill.
2. Select material, bedding material, and sand-clay-gravel are acceptable structural fill materials. Any structural fill material encountered during the excavation, may be stored in

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segregated stockpiles for reuse shall be spoiled as specified herein for disposal of unsuitable materials.

3. Wellpointing - Wellpoints shall be of P.V.C. construction of one and one-half inch (1½") by variable lengths with three feet (3') of .016 slotted screen at one (1) end of this assembly. Other end of this assembly to accept a one (1) piece, cylindrical shape, sleeve design of flexible P.V.C. material and to be self-sealing under any vacuum condition.

The wellpoint accessories shall be ALCO "Sure-Seal" as manufactured by ALCO pump company or equal.

**D. Trench Backfill**

1. Backfill methods for trenches, as shown on the Drawings, are classified into four (4) zones; bedding, initial backfill, intermediate backfill, and final backfill.
  - a. Bedding is the material a minimum of six inches (6") under the pipe up to a level even with six-tenths (6/10) of the outside diameter of the pipe. Limestone, size 57 or 610. At the Owner's option, the Engineer may direct the use of sand-clay-gravel as initial backfill.
  - b. Intermediate Backfill is the material placed above the initial backfill extending up to the final backfill. Acceptable intermediate backfill materials are select material, limestone sizes 57 to 610, sand-clay-gravel, and useable excavated soils. Intermediate backfill of pipes under highways or streets shall be 610 limestone or when directed by the Engineer special stabilization material. Intermediate backfill of pipes under paved driveways or parking lots shall be special stabilization material.
  - c. Final backfill is the material placed in the upper size to eighteen inches (18") of the trench after densification of the intermediate trench backfill. Acceptable final backfill material are the same as intermediate backfill except in locations under pavements, roads, streets, drives, or walks. Pavement replacements (improved surfaces) over trenches are detailed on the Drawings.
  - d. Foundation is the material below the pipe bedding material. Furnish foundation material where shown on the Drawings or where directed by the Engineer. Foundation material shall be as specified for pipe bedding, size 57 limestone.

**E. Unsatisfactory Materials**

Unsatisfactory materials shall be materials that do not comply with the requirements for other material specified herein. Unsatisfactory materials include but are not limited to those materials containing roots and other matter, trash, debris, frozen materials, and stones larger than six inches (6"), and materials classified in ASTM D2487, as PT, OH, and OL. Unsatisfactory materials also include man-made fills, refuse, or backfills from previous construction. Materials which are referred to a "unstable" and consists of material that are too wet to properly support utility pipe or structures shall be classified as unsatisfactory. All material classified unsatisfactory shall not be used as backfill material.

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**PART 3 - EXECUTION**

**3.01 EXCAVATION**

**A. General**

Excavation consists of removal and disposal of material encountered when establishing required grade elevations and in accordance with the Drawings.

**B. Excavation Classifications**

The following classifications of excavation will be made when unclassified excavation is encountered in the work. Do not perform such work until material to be excavated has been cross-sectioned and classified by Owner or specialized geotechnical consultant.

1. Authorized earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated in soil boring data on subsurface conditions, and other materials encountered that are not classified are unauthorized excavation.
2. Unauthorized excavation consists of removal of material beyond the limits needed to establish required grade and subgrade elevations without specific direction of Owner. Unauthorized excavation, as well as remedial work directed by the Owner shall be at no additional expense to the Owner. Backfill and compact unauthorized excavation, as specified for authorized excavations, except that bedding material as specified above shall be used for backfill under footings, foundations bases, or retaining walls unless otherwise directed by the Owner. If acceptable to the Owner or specialized geotechnical consultant and soil conditions allow the extra loading, the Owner may approve the use of lean concrete fill, reinforced or unreinforced as required by the site conditions and as required by the Owner.

**C. Additional Structural Excavation**

When excavation has reached required subgrade elevations, notify the Owner who will contact a specialized geotechnical consultant and make an inspection of conditions.

1. If unsuitable, unsatisfactory bearing materials are encountered at the required subgrade elevation, carry excavation deeper and replace the excavated material as directed by the Owner.
2. Removal of unsuitable material and its replacement as directed beyond the authorized limits will be paid on the basis of Contract conditions relative to changes in the work as provided in the General Conditions.

**D. Excavation for Structures**

Conform to elevations and dimensions shown within a tolerance  $\pm 0.10$  feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete framework, installation of services, other construction, and for inspection, or as shown on the Drawings.

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1. In excavation for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive any required stabilization material or concrete.
2. In the event that excavations subsequent to the placement of the fill are performed by the Contractor to install piping, conduit, or other appurtenances, any fill placed above the level of the planned excavation shall be fully compacted in accordance with the requirements of this specification prior to beginning the excavation.

**E. Excavation for Pipelines**

1. Excavation for all trenches required for the installation of pipes and electrical ducts shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe or installing the ducts within the trenches, for bracing and supporting and for pumping and drainage facilities. The bottom of the excavations shall be firm and dry, and in all respects acceptable to the Owner.
2. Where pipes or ducts are to be laid in bedding or encased in concrete the trench may be excavated by machinery to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.
3. Where the pipes or ducts are to be laid directly on the trench bottom, the lower part of the trenches shall be excavated to grade by machinery. The material being excavated shall be done in such a manner that will give a flat bottom true to grade so that pipe or duct can be evenly supported on undisturbed material. Bell holes shall be made as required.
4. During excavation, material satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench equal to one-half ( $\frac{1}{2}$ ) the depth of the excavation, but in no instance closer than two feet (2'). Excavated material not required or not satisfactory for backfill shall be disposed of by the Contractor. Grading shall be done as may be necessary to prevent surface three (3) water from flowing into the excavation, and any water accumulating therein shall be removed to maintain the stability of the bottom and sides of the excavation. Unauthorized over excavation shall be backfilled at no additional cost to the Owner.
5. Where sheet piling, shoring, sheeting, bracing, or other supports are necessary, they shall be furnished, placed, maintained and removed by the Contractor. Sheet piling and other supports shall be withdrawn in such a manner as to prevent additional backfill on pipelines which might cause overloading.
6. In advance of any excavation of any trench or trenches five feet (5') or more in depth, the Contractor shall submit for acceptance of the Owner, a detail plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of casing earth during the excavation of such trench or trenches. All design of trench protection devices shall be by a registered Civil or Structural Engineer's license in the state in which work is to occur.

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**3.02 FILL PLACEMENT**

**A. General**

1. Material placed in fill areas under and around structures within the pipe trench limits shall be deposited within the lines and to the grades shown on the Drawings or as directed by the Owner, making due allowance for settlement of the material. Fill shall be placed only on properly prepared surfaces which have been inspected and approved by the Owner. If sufficient fill material is not available from excavation on site, the Contractor shall provide borrows as may be required.
2. Ground Surface Preparation - Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip, or break-sloped surfaces steeper than one (1) vertical to four (4) horizontal so that fill material will bond with existing surface.
3. Fill shall be brought up in substantially level lifts throughout the site, starting in the deepest portion of the fill. The entire surface of the work shall be maintained free from ruts, and in such condition that construction equipment can readily travel over any section. Fill shall not be placed against concrete structures until they have attained sufficient strength.
4. Fill shall be dumped and spread in layers by a bulldozer or other approved method. During the process of dumping and spreading, all roots, debris, and other objectionable material shall be removed from the fill areas, and the Contractor shall assign a sufficient number of men to this work to insure satisfactory compliance with these requirements.
5. If the compacted surface of any layer of material is determined to be too smooth to bond properly with the succeeding layer, it shall be loosened by harrowing or by any other approved method before the succeeding layer is placed.
6. All fill materials shall be placed and compacted "in-the-dry". The Contractor shall dewater excavated areas and is required to perform the work in such manner as to preserve the undisturbed state of the natural inorganic soils.

**3.03 COMPACTION**

**A. General**

1. Contractor shall control soil compaction during construction and obtain the minimum required percentage of the total maximum dry densities as specified herein and as shown on the structural or civil drawings. Soil compaction with the backhoe bucket or any other heavy apparatus not designed specifically for soil compaction is not allowed. The Contractor shall maintain the backfill for a period of one (1) year after final acceptance and shall restore any backfill that fails and repair any pavement or other structures which may be damaged as a result of backfill failure.

It shall be the Contractor's responsibility to notify the Owner in writing that compaction tests of either the nuclear gauge, sand-cone, or other method as required can be performed.

2. The frequency for density tests will be a minimum of one (1) test per lift per 1,000 linear feet under pavements, within street and highway rights-of-way, and under building slabs and one (1) randomly selected test per 2,500 linear feet for open areas (testing of each lift in open



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areas is not required). If the density tests indicate that the work does not meet specified density requirements, the Owner may require additional density tests to determine the extent of the deficient work. The Contractor will not be allowed an extension of contract time as a result of any density testing.

3. It is the Contractor's responsibility to provide equipment and labor as needed to achieve the required compaction as specified herein. Should the rates of compaction fall below the values specified herein, the Owner has the right to instruct the Contractor to alter his work to assure that the required backfill quality is consistently achieved. Any decision by the Owner to forgo such instructions shall in no way relieve the Contractor of his responsibility to provide backfill of the specified quality.

**B. Percentage of Maximum Density Requirements**

1. Compact soil to not less than the following percentages of maximum dry density as determined in accordance with AASHTO T-180 (ASTM D1557, Modified Proctor) or seventy-five percent (75%) relative density as determined by ASTM D3049 as applicable.
  - a. Structures and Five Feet Zero Inches (5'0") Around Perimeter of Building: Compact top thirty-six inches (36") of subgrade and each layer of backfill or fill material to a minimum of ninety-five percent (95%) of the maximum dry density.
  - b. Building Slabs: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material to a minimum of ninety-five percent (95%) of the maximum dry density.
  - c. Compaction of Backfill Near Highways or Streets: Where the trench limit falls under the roadway pavement or within two feet (2') of the edge of pavement, requiring limestone backfill and in other areas designated on the Plans where future roadways are to be constructed, backfill for the balance of the trench above a point one foot (1') above the top of the pipe shall be placed in layers of not more than six inch (6") compacted thickness and compacted with mechanical tampers or by any satisfactory method or methods that will obtain the density hereinafter specified. The density of compacted material in each layer of backfill shall not be less than ninety-five percent (95%) of the maximum dry density.
  - d. Walkways: Compact top six inches (6") of subgrade to a minimum of ninety-five percent (95%) of the maximum dry density.
  - e. Driveway Pavements and Steps: Compact top twenty-four inches (24") of subgrade to a minimum of ninety-five percent (95%) of the maximum dry density.
  - f. Bedding Material: Shall be compacted to a minimum of ninety-two percent (92%) of the maximum dry density.
  - g. Compaction of All Other Backfill: Where a trench is in open ground and the backfill is not influenced by the loading conditions as described in the other listed backfilling requirements, the balance of the trench above a point one foot (1') above the top of the pipe may be filled and compacted in layers of not more than twelve inches (12") to obtain a minimum density of the measured insitu condition prior to excavation. If the Contractor has to dry the excavated soil to a moisture content below the insitu moisture content in order to achieve the required rate of compaction, he shall do so at no additional expense

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to the Owner. The final surface shall be left in a condition equal to that originally found at the start of the work.

C. Moisture Control

Condition subgrade or layer material correcting moisture content:

1. When the material is too dry to be compacted efficiently, the Contractor shall uniformly apply water to surface of subgrade or layer of soil material and thoroughly mix the soil to achieve a moisture content near the optimum level to facilitate connection.
  2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
  3. Soil material that has been removed because it is too wet to permit compaction but is otherwise satisfactory may be stockpiled or spread and allowed to dry. The Contractor may assist the drying process by disking, harrowing or pulverizing to reduce the moisture content to a satisfactory value.
- D. Structural fill and base course in open areas shall be placed in layers not to exceed the thickness specified above. Each layer shall be compacted to the minimum dry density as stated herein. Incidental compaction due to traffic by construction equipment will not be credited toward the required minimum compaction as required for any material. Acceptable bedding material is #57 limestone.
- E. All other fill shall be placed and compacted in a manner similar to that described above for structural fill except that dike or levee fill required below water level in peat excavation areas, this may be placed as one (1) lift, in-the-wet, to an elevation one foot (1') above the water level at the time of filling.
- F. Areas adjacent to structures and other confined areas inaccessible to roller type equipment shall be compacted with approved hand guided mechanical compaction equipment. The Contractor shall also conform to additional backfilling requirements at structures as specified in Part 3 of these Specifications. Compaction of the fill by such means shall be to the same degree of compaction as obtained by roller type equipment and the Owner may make the necessary tests to determine the amount of compactive effort necessary to obtain connection. Unless such tests indicate that modifications may be made, the fill compacted by mechanical compactors shall be placed in six inch (6") layers and thoroughly tamped over the entire surface. Compaction equipment is subject to approval by the Owner.

3.04 **PIPE BACKFILLING**

- A. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed, and inspected and the trench filled with suitable compacted bedding material up to a level even with six-tenths (6/10) of the outside diameter of the pipe or as otherwise required on the Drawings. Acceptable bedding material is #610 limestone.
- B. All backfilling shall be prosecuted expeditiously and as detailed on the Drawings.
- C. Any space remaining between the pipe and sides of the trench shall be packed full by hand shovel with bedding material and thoroughly compacted with a tamper as fast as placed in lifts

**TECHNICAL SPECIFICATIONS**  
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no greater than six inches (6") in thickness, up to a level even with six-tenths (6/10) of the outside diameter of the pipe.

- D. The backfilling shall be carried up evenly on both sides of the pipe with at least one (1) man tamping for each man shoveling material into the trench.
- E. Acceptable initial backfill material either #610 limestone, sand clay gravel or select material shall then be placed and compacted from the top of the bedding material to a minimum depth of one foot (1') above the top of the pipe.
- F. The remainder of the trench intermediate and final backfill, as just described above shall be filled and thoroughly compacted to the required density by rolling, ramming, or puddling to prevent subsequent settling.

**3.05 BACKFILLING AROUND STRUCTURES**

- A. Fill shall be placed in layers having a maximum thickness of eight inches (8") in loose state and shall be compacted sufficiently to prevent settlement. If compaction is by rolling or ramming, material shall be wet down as required. Where material can be suitably compacted by flooding, the Contractor may use this method.
- B. Backfilling shall be carried up evenly on all walls of an individual structure simultaneously. A longitudinal variation of two feet (2') and a horizontal variation of three inches (3") in elevation will be the maximum allowable. No backfill shall be allowed against walls until the walls and their supporting slabs if applicable have attained sufficient strength. Backfilling shall be subjected to approval of the Owner.
- C. In locations where pipes pass through building walls, the Contractor shall take the following precautions to consolidate the backfilling up to an elevation of at least one foot (1') above the bottom of the pipes:
  - 1. Place structural fill in such areas for a distance of not less than three feet (3') either side of the center line of the pipe in level layers not exceeding six inches (6") in thickness.
  - 2. Wet each layer to the extent directed by the Owner and thoroughly compact each layer with a power tamper to the satisfaction of the Owner.
  - 3. Structural fill shall be of the quality specified under Part 2 of this Section.
- D. The final finished surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated on the grading plan, and no soft spots or uncompacted areas will be allowed in the work.
- E. Temporary bracing shall be provided as required during construction of all structures to protect partially completed structures against all construction loads, hydraulic pressure, and earth pressure. The bracing shall be capable of resisting all loads applied to the walls as a result of backfilling.

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3.06 GRADING

A. General

Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades as are required or shown on the Drawings.

B. Grading Outside Building Lines

Grade areas adjacent to building lines, as shown on the Drawings, to drain away from structures and to prevent ponding. Finish surface free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas - Finish areas to within not more than 0.10 feet above or below the required elevation.
2. Walks - Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required elevation.

C. Grading Surface of Fill Under Building Slabs

Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of one-half inch ( $\frac{1}{2}$ " ) when tested with a ten foot (10') straightedge.

D. Compaction

After grading, compact subgrade surfaces to the depth and percentage of maximum dry density for each area classification.

- E. Grading shall be performed at such places as are indicated on the Drawings, to the lines, grades, and elevations shown or as directed by the Owner and shall be made in such a manner that the requirements for formation of embankments can be followed. All unacceptable material encountered, of whatever nature within the limits indicated, shall be removed and disposed of in accordance with Paragraph 3.07. During the process of excavation, the grade shall be maintained in such condition that it will be well drained at all times. When directed, temporary drains and drainage ditches shall be installed to intercept or divert surface water which may affect the prosecution or condition of the work.
- F. If at the time of excavation it is not possible to place any material in its proper section of the permanent structure, it shall be stockpiled in approved areas for later use. No extras will be considered for the stockpiling or double handling of excavated material.
- G. The right is reserved to make adjustments or revisions in lines or grades if found necessary as the work progresses, due to discrepancies on the Drawings or in order to obtain satisfactory construction.
- H. All fill slopes shall be uniformly dressed to the slope, cross section and alignment shown on the Drawings, or as directed by the Owner.

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- I. In cuts, all loose material on the back slopes shall be barred loose and otherwise removed to line or finished grade of slope. All cut and fill slopes shall be uniformly dressed to the slope, cross section and alignment shown on the Drawings or as directed by the Owner.
- J. No grading is to be done in areas where there are existing pipelines that may be uncovered or damaged until such lines, which must be maintained, are relocated, or where lines are to be abandoned, all required valves are closed and drains plugged at manholes.

**3.07 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL**

- A. Unsuitable and surplus excavated materials, unless specified otherwise below, and pavement shall become the property of the Contractor to be removed and disposed of by the Contractor off the project site.
- B. Usable excavated material may be used for fill or backfill if it meets the Specifications and is approved by the Owner. Excavated material so approved may be neatly stockpiled at the site where designated by the Owner provided there is an area available that will not interfere with the Owner's access nor inconvenience traffic or adjoining property owners.
- C. Surplus suitable excavated material shall be used to fill depressions as the Owner may direct.

**3.08 SPECIAL FOUNDATIONS**

- A. The Contractor shall furnish and install a special foundation for gravity sewer pipe and manholes or other pipes (i.e., force mains, water mains, etc.) as shown on the Drawings.
- B. All gravity sewer lines and laterals shall be installed on the special bedding foundation and the prices for laying gravity sewer lines shall include this cost. This bedding shall be as previously specified and placed in the trench to the proposed elevation prior to any pipe laying. This bedding shall not be used under any circumstances as a drain for groundwater. The Contractor shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing erosion or loosening of this bed.

**3.09 MAINTENANCE**

- A. Protection of Graded Areas

Protect newly graded areas from traffic and erosion. Keep areas free of trash and debris and repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

- B. Reconditioning Compacted Areas

Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02445 - BORING OR JACKING CONDUITS**

**PART 1 - GENERAL**

1.01 SCOPE OF WORK

- A. The work covered by this Section consists of furnishing and installing pipe in embankments at the locations shown on the Plans by jacking or boring methods.
- B. Related Sections
  - 1. 02315 Excavation, Backfilling and Compaction
  - 2. 02510 Water Distribution Lines
  - 3. 02537 Sanitary Sewer Collection Lines
  - 4. 02538 Sanitary Sewer Force Mains
  - 5. 02554 Natural Gas Distribution Systems
  - 6. 02632 Reinforced Concrete Pipe
  - 7. 02633 Corrugated Metal Pipe
  - 8. 02634 Plastic Pipe
  - 9. 02964 Removal and Replacement of Sanitary Sewer Pipe

**PART 2 - PRODUCTS**

2.01 GENERAL

- A. Pipe and joint materials shall conform to the applicable Section of these Specifications for the type of pipe being jacked or bored.

**PART 3 - EXECUTION**

3.01 GENERAL

- A. In general, pipes thirty inches (30") in diameter and greater shall be jacked, and pipes less than thirty inches (30") in diameter shall be bored.
- B. Jacking or Boring shall begin at the outfall end of pipe. Any deviations must be approved by the Engineer.
- C. Excavation of pits or trenches for jacking or boring and placing of pipe shall be the responsibility of the Contractor. Sheet piling and bracing, if necessary, shall also be provided at no additional cost to the Owner.
- D. For pipe with bell joints, if the outside diameter of pipe bell exceeds the outside diameter of the pipe barrel by more than one inch (1"), pipe shall be either cased or pressure grouted its full length. Casing shall be an approved type and size (if not specified on the Drawings), and shall be furnished and installed by the Contractor. Pressure grouting shall be performed with approved materials placed by methods approved by the Engineer.
- E. Jacking or Boring methods used shall be such as not to weaken or damage the embankment.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02445 - BORING OR JACKING CONDUITS**

3.02 **INSTALLATION**

A. Jacking

Heavy duty jacks suitable for forcing pipe through the embankment shall be provided. Even pressure shall be applied to all jacks and shall be transmitted to the pipe end through a jacking head. The jacking head shall be designed so that pressure is uniformly applied around the ring of the pipe. Backstop or jacking frame shall be adequate to resist pressure of the jacks under load. Pipe shall be set on guides properly fastened together to support the pipe in the proper direction at correct grade. Suitable cushioning material, such as plywood, shall be provided between sections of concrete pipe.

Material shall be excavated ahead of the pipe and shall be removed through the pipe. Excavation shall not extend more than two feet (2') beyond the forward end of pipe. When the character of embankment material dictates, the distance shall be reduced to prevent the embankment from being damaged.

Excavation on the underside of pipe, for at least one-third  $\frac{1}{3}$  the circumference of pipe, shall conform to the contour and grade of the pipe. A clearance of not more than two inches (2") may be provided for the upper half of pipe, tapered to zero (0) at the point where excavation conforms to contour of pipe.

A steel cutting edge may be used around the forward end of pipe, constructed so that it will transmit pressures uniformly around the ring of the pipe.

Jacking shall continue without interruption, to prevent pipe from becoming firmly set in the embankment.

Pipe shall not vary horizontally or vertically by more than one inch (1") in ten feet (10') from established line and grade. Any variation shall be regular, and no abrupt changes in direction will be permitted. Any pipe damaged or misaligned in jacking operations shall be removed and replaced by the Contractor at no direct pay.

B. Boring

Boring shall be done mechanically, using a pilot hole approximately two inches (2") in diameter. The pilot hole shall extend through the embankment and shall be checked for line and grade before boring begins. Variations from line and grade shall not exceed those specified for jacking. The pilot hole shall serve as centerline of the larger diameter hole to be bored.

The use of water and other fluids with boring operations will be permitted only to lubricate cuttings. Jetting will not be permitted.

In unconsolidated soil formations, a gel-forming colloidal drilling fluid consisting of at least ten percent (10%) high-grade, bentonite may be used to consolidate cuttings of the bit, seal walls of the hole, and furnish lubrication for subsequent removal of cuttings and installation of pipe.

Overcutting in excess of one inch (1") shall be remedied by pressure grouting the entire length of the installation.



**TECHNICAL SPECIFICATIONS**  
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**SECTION 02445 - BORING OR JACKING CONDUITS**

Pipe shall be joined as specified in accordance with the applicable Section of these Specification for the type of pipe being installed.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02510 - WATER DISTRIBUTION LINES**

**PART 1 - GENERAL**

**1.01 SCOPE**

- A. The work shall consist of construction of water distribution lines in reasonably close conformity to the lines and grades indicated on the Drawings or as established by the Engineer. The work includes the furnishing of all labor, materials, equipment and incidentals necessary to completely install, test and clean water distribution lines. Other miscellaneous appurtenances such as valves, hydrants, and water meters shall be covered in other Sections.
- B. Related Sections
  - 1. Division 1 - General Requirements
  - 2. Section 02315 - Excavation, Backfilling and Compaction
  - 3. Section 02445 - Boring or Jacking Conduits
  - 4. Section 02512 - Valves
  - 5. Section 02513 - Hydrants
  - 6. Section 02514 - Water Meters

**1.02 REFERENCED STANDARDS/DOCUMENTS**

The latest edition of the publications listed before form a part of these specifications to be extended referenced. The publications are referred to in text by the basic designation only.

- 1. ASTM D1784 "Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds"
- 2. ASTM D2241 "Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series)"
- 3. ASTM D2837 "Standard Test Method for obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials"
- 4. ASTM D3350 "Standard Specification for Polyethylene Plastics Pipe and Fittings Materials"
- 5. AWWA C104 "American National Standard for Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water"
- 6. AWWA C110 "American National Standard for Ductile-Iron and Gray-Iron Fittings, 3" through 48", for Water and Other Liquids"
- 7. AWWA C111 "American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings"
- 8. AWWA C150 "American National Standard for Thickness Design of Ductile-Iron Pipe"
- 9. AWWA C151 "American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids"
- 10. AWWA C605 "American National Standard for Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings."

**TECHNICAL SPECIFICATIONS**  
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**SECTION 02510 - WATER DISTRIBUTION LINES**

- 11. AWWA C900 "AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4" through 12", for Water Distribution"
- 12. AWWA C901 "AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2" through 3", for Water Service"
- 13. AWWA C906 "AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4" through 63", for Water Distribution"

**1.03 SUBMITTALS**

- A. All products and/or materials to be used in this project shall be submitted to the Engineer in accordance with Section 01340 of Division 1 - General Requirements.
- B. Manufacturers shall submit with his shop drawings any recommended installation procedures which, when approval by the Engineer, shall become the basis for inspecting, accepting, and/or rejecting actual installation procedures used on this project.
- C. The manufacturers shall submit in writing a certification that the product meets these Specifications. Certification shall be in the format similar to the certification form shown at the end of Section 01340.
- D. Mill certificates shall be furnished upon request of the Engineer.

**1.04 QUALITY ASSURANCE**

- A. All pipe and material to be installed under this Contract shall be inspected and tested at the place of manufacture by the manufacturer whose products have been in satisfactory and acceptable use by the industry in a similar service for not less than five (5) years.
- B. Contractor shall have at least three (3) years of installation experience on projects with water lines similar to that required for this project. Installers shall use an adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods as outlined by the material manufacturer for the proper installation of products in this Section.
- C. Each length of pipe shall be subject to inspection, approval, and acceptance at the factory, point of delivery, and site of work. At the discretion of the Engineer, a sample of pipe to be tested shall be delivered by the Contractor to the testing laboratory approved by the Owner.
  - 1. When the specimens tests conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameter measured. Copies of tests reports shall be submitted to the Engineer before the pipe is installed in the project.
  - 2. In the event that any of the test specimens fail to meet the applicable standards, all pipe represented by such tests shall be subject to rejection. The Contractor may furnish two (2) additional test specimens from the same shipment or delivery for each specimen that failed and the pipe will be considered acceptable if all of these additional specimens meet the requirements of the applicable standards.
  - 3. Pipe which has been rejected by the Engineer shall be removed from the site of the work by the Contractor and replaced with pipe which meets these Specifications.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02510 - WATER DISTRIBUTION LINES**

1.05 DELIVERY, STORAGE AND HANDLING

- A. Store in accordance with manufacturer's recommendations.

**PART 2 - PRODUCTS**

2.01 GENERAL

- A. Sizes and strength classification of water pipe to be used in all locations are indicated on the Drawings or on the bid form.
- B. Each length of pipe shall bear the name or trademark of the manufacturer, the location of the manufacturing plant, and the class or strength classification of the pipe. The markings shall be plainly visible on the pipe barrel.
- C. The following pipes and fittings may be used as water distribution pipes as indicated on the Drawings.
  - 1. Polyvinyl Chloride Pipe (PVC)
  - 2. Ductile Iron (DI)
  - 3. Polyethylene (PE)
- D. All pipes and fittings shall conform to the reduced lead requirements of ACT 362 of 2011 (Louisiana Revised Statutes 40:1299.27.1 "Low Lead in Water Distribution Systems" and Louisiana House Bill 471 of the 2011 Regular Session). A copy of Lead Reduction Fact Sheet is provided at the end of this section.

2.02 MATERIALS

- A. Ductile Iron Pipe, Joints and Fittings
  - 1. Pipe
    - a. Pipe shall be designed and manufactured in accordance with ANSI Specifications A21.50 - 1976 (AWWA C150-76) and A21.51 - 1976 (AWWA C151-76), respectively.
    - b. Pipe shall be cement lined, standard thickness, and lining sealed with an approved bituminous seal coat in accordance with ANSI Specification A21.4 (AWWA C104), latest revision. Provisions of Section 4-12 relating to characteristics of bituminous seal coat as to deleterious effect upon the quality, color, taste or odor imparted to potable water shall be strictly observed. The outside of the pipe shall be standard bituminous coated.
    - c. The pressure rating, metal thickness class, net weight of pipe without lining, length of pipe, ductile iron, year of manufacture, and name of manufacturer shall be clearly marked on each length of pipe.

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- d. Pipe shall be Thickness Class 50, adequate for the rated working pressure and maximum depth of cover shown in the following Table:

<u>SIZE</u>	<u>MINIMUM METAL THICKNESS, IN.</u>	<u>RATED WATER WORKING PRESSURE</u>	<u>MAXIMUM DEPTH OF COVER, FEET</u>
6"	0.25	350	IN
8"	0.27	350	ACCORDANCE
10"	0.29	350	WITH ANSI
12"	0.31	350	A 21.50
14"	0.33	350	(AWWA C-150)
16"	0.34	350	
18"	0.35	350	
20"	0.36	300	
24"	0.38	250	

2. Joints

- a. Joints shall be of the slip-on or mechanical joint type and shall conform to ANSI Specifications A21.11 (AWWA C111), latest revision. Gaskets, rings and lubricants shall be in accordance with the manufacturer's recommendations. Gaskets shall be of vulcanized material or synthetic rubber compound.

3. Fittings

- a. Fittings shall be ductile iron slip-on or mechanical joint fittings, conforming to ANSI Specifications A21.10 (AWWA C110), latest revision and A21.11 (AWWA C111), latest revision, but shall be of the shortbodied pattern. Fittings shall be cement lined standard thickness in accordance with ANSI Specifications A21.4 (AWWA C104), latest revision, and shall have standard bituminous outside coating.

**B. Plastic Water Pipe**

1. Plastic Water Pipe

- a. Plastic pipe shall be polyvinyl chloride (PVC) conforming to ASTM D-1784 and ASTM D-2241 or UNI-B-11-85 latest revisions with integral bell and rubber gasket joint. The PVC pipe shall be approved by the National Sanitation Foundation for potable water pipe and said stamp shall be inclusive on the pipe furnished along with nominal size O.D. base, material code designation, dimension ratio number, AWWA pressure class, AWWA designation number and the manufacturer's name or trademark.

2. Plastic Pipe

- a. Plastic pipe shall meet one of the following specifications as designed on the plan drawing or the bid form.
1. A.W.W.A. C-900, a standard for Polyvinyl Chloride (PVC) pressure pipe for water and shall be furnished in Cast Iron equivalent outside diameter, Class 100, 150 or 200 whichever is designated on the Proposal Form and plan drawings. All Class 100 pipe shall meet the requirements of DR25, Class 150 pipe the requirements of DR18 and Class 200 the requirements of DR14.

**TECHNICAL SPECIFICATIONS**  
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**SECTION 02510 - WATER DISTRIBUTION LINES**

2. Polyvinyl chloride (PVC) SDR 26 (Class 160) or SDR 21 (Class 200) in accordance with ASTM D-2241 or Cast Iron O.D. PVC Pipe DR 25 160 PSI pressure rating in accordance with UNI-B-11-85, whichever is designated on the bid form or plan drawings.

3. Fittings

- a. Fittings for plastic pipe 4 inches and larger shall be slip-on or mechanical joint ductile iron fittings, suitable for use with plastic pipe and manufactured in accordance with ASA Specification A21.10, and shall be furnished with a cement lining, manufactured in accordance with ASA Specification A21.4. Outside shall be standard bituminous coated.
- b. Fittings for plastic pipe smaller than 4 inches in size shall be type 1 PVC with slip-on type joint.
- c. Plastic or metal valves, fittings and hydrants, and pipe of materials other than plastic, whose joints are not suitable for direct connection to plastic pipe, shall be connected to plastic pipe by adapters, as recommended by the manufacturer.
- d. All plastic fittings shall be marked with the NSF seal of approval.

C. Polyethylene Water Pipe

1. General

- a. Polyethylene pipe shall conform to ASTM D3350 (and ASTM D2837 for 4" and larger) for the corresponding cell classification as follows:

<u>Standard PE Code</u>	<u>Cell Classification</u>
PE 2406	PE 213323C
PE 3405	PE 324433C
PE 3408	PE 334434C

- b. Polyethylene compounds shall be tested and certified as suitable, for use with potable water by an accredited testing agency acceptable to the owner. The polyethylene pipe shall be approved by the National Sanitation Foundation for potable water pipe and said stamp shall be inclusive on the pipe furnished along with nominal size O.D., standard PE code designation, dimension ratio number, AWWA pressure class, AWWA designation number, and manufacturer's name or trademark.

2. Pipe

- a. Polyethylene pipe shall meet the following specifications as designated on the plan drawings or the bid form.
  1. Polyethylene pipe three (3) inches and smaller shall be Plexco Bluestripe-FM as manufactured by Chevron Chemical Company or approved equal and as a minimum shall meet or exceed the requirements of AWWA C901, latest edition. Pipe shall be PE 3408, pressure class 160 (DR 11) as designated on the plans or bid form.

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2. Polyethylene pipe four (4) inches and larger shall be Plexco Bluestripe-FM as manufactured by Chevron Chemical Company or approved equal and as a minimum shall meet or exceed the requirements of AWWA C906, latest edition. Pipe shall be PE 3408, pressure class 200 (DR-9.0) as designated on the plans or bid form.
3. Joining Methods
  - a. Polyethylene piping may be joined by thermal butt-fusion, flange assemblies, or mechanical methods as may be recommended by the pipe supplier. Polyethylene piping shall not be joined by solvent cements, adhesives (such as epoxies), or threaded-type connections. All joining methods shall be capable of conveying water at not less than the design pressure of the piping system and shall be recommended for use by the pipe manufacturer.
  - b. Joining methods shall meet or exceed the requirements of AWWA C906, latest edition for pipe four (4) inches and larger and the requirements of C901, latest edition for pipe three (3) inches and smaller.
- D. Plastic Service Pipe and Fittings
  1. Piping
    - a. Piping shall be PE 3408, 160 P.S.I., 3/4", 1", 1 1/2" or 2" polyethylene pipe as designated on plan drawings or the bid form.
  2. Fittings
    - a. All fittings on service lines shall be brass compression fittings. Inserts shall be provided in all fittings unless special fittings not requiring inserts are approved.
- E. Tracer Wire
  1. Contractor shall install a 12 gauge solid copper tracer wire over the center of all plastic or non-conductive piping. The tracer wire shall be connected to each valve box and fire hydrant such that a locator may be attached to the tracer wire. The cost of furnishing and installing the tracer wire shall be included in the unit bid price for the water line.

When splicing of tracer wire is required, the wire shall be spliced with an approved direct bury splice (3M or equal). The wire shall be spliced using an approved electrical spring connector. The splice shall be inserted into a gel-filled insulator tube in accordance with manufacturer's recommendations at no direct pay.

**PART 3 - EXECUTION**

**3.01 GENERAL**

- A. Pipe shall be protected during handling against impact shocks and free fall and the pipe interior shall be free of extraneous material.
- B. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no water, earth or other substances will enter the pipe. Any sections of pipe found to be defective



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before or after laying shall be replaced with new pipe by and at the expense of the Contractor.

**3.02 INSTALLATION**

**A. Pipe**

1. Pipe shall be laid to and maintained at required lines and grades as shown on the Drawings, and in accordance with AWWA C605.
2. The bottom of the trench shall be accurately graded to provide uniform bearing and support for the full bottom segment of the pipe for its entire length. Bell or coupling holes shall be carefully excavated at proper intervals so that no part of the load is supported by bells or coupling.
3. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be joined or of the factory-made jointing material shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined and adjusted in such a workmanlike manner as to obtain the degree of water-tightness required.
4. As soon as each length of pipe has been properly placed and jointed, the spaces between the pipe and sides of the trench shall be carefully backfilled and compacted. Each joint shall be checked for line and grade before the next succeeding joint is placed.
5. Walking or working on the completed water pipe, except as may be necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a height of at least one foot (1') above the top of the pipe.
6. Under no conditions shall water pipe be laid against the wall of the trench. The minimum distance from the exterior of pipe to trench wall shall be six inches (6"). Extra precaution shall be taken to prevent hard clay lumps, shoring, rocks or other large objects from lodging against the pipe during backfill.
7. Provide thrust blocking or adequate anchorage at each hydrant, valve, bend, tee and at reducers or fittings where changes occur in pipe diameter or direction.

**B. Connections to existing mains**

1. Connections to existing water mains will be made by using tapping valves and tapping sleeves while the existing main is in service.
2. Taps into existing mains shall be of the same size as the tapping valve.
3. Installation of the tapping sleeves and tapping valves, together with the tapping of the existing main shall be accomplished in accordance with the recommendations of the manufacturer of the tapping materials and equipment.
4. Installation of tapping sleeves and tapping valves shall be made under pressure. No interruption of water service will be permitted.
5. Valves and sleeves shall be firmly secured to prevent blow out when under pressure.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02510 - WATER DISTRIBUTION LINES**

C. Valves

1. Valves shall be installed in accordance with Section 02512.

D. Hydrants

1. Hydrants shall be installed in accordance with Section 02513.

E. Water Meters and Service Assemblies

1. Water meters and service assemblies shall be installed in accordance with Section 02514.

3.03 **HYDROSTATIC TESTING**

A. General

1. Before the water system will be accepted, it shall be subjected to pressure and leakage tests. Tests shall not begin until all concrete thrust blocks on the section to be tested have been in place for at least 5 days.
2. All tests, personnel and testing equipment, including water, shall be provided by the Contractor at no cost to the Owner. Prior to performance of the test, all air shall be expelled from the pipeline to the satisfaction of the Engineer.

B. Pressure Test

1. Piping or any valved section of piping shall be subjected for 6 hours to a hydrostatic pressure of 150 pounds per square inch. Each valve shall be opened and closed several time during the test. If left exposed, joints, fittings and valves shall be carefully examined during the test. Joints showing visible leakage shall be replaced or remade, as necessary. Cracked or defective pipe, fittings and valves discovered in consequence of this pressure test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory to the Engineer.

C. Leakage Test

1. Leakage tests shall be conducted after the pressure test has been satisfactorily completed. The duration of each leakage test shall be at least 6 hours, and during the test the main shall be subjected to 150 pounds per square inch pressure. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section thereof, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.
2. The amount of leakage under the stated test pressure shall not exceed 10.5 gallons per day for each mile of pipe for each inch of diameter. Should the amount of leakage exceed the above limit, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified limits.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02510 - WATER DISTRIBUTION LINES**

**3.04    STERILIZATION**

**A.    General**

1. All new potable water lines, including pipe, valves, fittings, etc., shall be sterilized prior to being placed in use and before final acceptance.
2. The Contractor shall furnish suitable plugs or caps for the pipe, injection pumps, pipe connections, disinfectant and equipment together with all labor required. Cost of sterilization shall be included in the price bid for water lines and will not be paid for separately.
3. Sterilization shall comply with the requirements of the Louisiana Department of Health and Hospitals.

**B.    Procedure**

1. Before sterilization, all lines shall be flushed clean. Sterilization shall be accomplished with a chlorine solution made with liquid chlorine or hypochlorite containing not less than 50 ppm of available chlorine. Other disinfectants may be used upon approval of the Engineer.
2. The chlorine solution shall be introduced in a manner that will insure uniform distribution. While the solution is being applied to any section of the system, the water shall be allowed to escape at all extremities of this section until an orthotolidin test indicates a 50 ppm (50 mg/l) chlorine residual. The chlorine solution shall be allowed to remain in the section for a minimum of 24 hours, after which the lines shall be thoroughly flushed until the residual chlorine is reduced to no less than 5 ppm (5 mg/l). During the 24 hour period and during flushing, all valves shall be opened and closed several times.
3. Samples shall be taken for bacteriological tests and bacteriological testing shall be done by a lab that is certified by the State Health Officer. Contractor shall be responsible for obtaining and testing of all samples. If tests indicate that the lines are not completely sterilized, the process shall be repeated on that section, until the bacteriological tests indicate that the section is sterilized.
4. New water lines shall not be used nor shall they be connected to existing lines in any way, until the new lines have been tested, sterilized and approved by the Engineer and the Louisiana Department of Health and Hospitals.

**3.05    INSPECTION**

- A.    Final inspection of the work shall be made by the Engineer after the Contract has been completed and tendered for acceptance. In order to be acceptable, the work must, at a minimum, comply with the following:**
1. The pipe work shall be true to line and grade.
  2. There shall be no cracked or broken pipe, fittings, valves, hydrants or meters.
  3. There shall be no defective joints.
  4. The interconnections and main shall be free from mud, trash, debris, etc.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02510 - WATER DISTRIBUTION LINES**

5. All water lines, valves, hydrants, meters and fittings must have met the required pressure and leakage tests.
6. All trenches shall have been refilled after settlement so that the surface condition is equal to that before the work started, and all surplus earth shall have been removed unless otherwise instructed by the Engineer.
7. All roadways shall be in good condition, at least equal to the condition existing before work commenced under this Contract, and all shell roadways repaired so that the integrity of the roadway as a whole is unimpaired.
8. Present written certification from the Louisiana Department of Health and Hospitals that the system may be used as a municipal or community potable water supply system.

**3.06 MAINTENANCE OBLIGATION**

- A. If at any time during the performance of the contract, defects in the work shall develop or be discovered, the Contractor shall promptly repair or replace the defective workmanship or materials even though such workmanship or materials has already passed inspection.

When the work covered by the Contractor has been completed, it will be given the careful inspection and remeasurement. The Contractor shall remove all obstructions and deposits found in the pipes, connections, etc., and shall repair or remove and replace as directed by the Engineer, any crushed, broken or otherwise defective structures or appurtenances.

For a period of 45 days after substantial completion of the work, the Contractor shall keep all pipes, connections, structures, paved and unpaved surfaces, etc., constructed under this Contract in good condition, making repairs to such maintenance and repair in an obligation of the Contractor and the cost thereof must be included in the price bid for the various items of work. In the event of the Contractor's failure to do this maintaining and repairing to the satisfaction of the Engineer and according to terms of the Contract, the Owner will have the right to have the necessary work done and to deduct the cost thereof from retained money. If the retained money is not sufficient, the surety company will reimburse the Owner for expenses involved.

***END OF SECTION***

## State of Louisiana Safe Drinking Water Program

### Low lead requirements in plumbing and potable water distribution systems:

Concentrations of lead found in drinking water do not typically derive from natural sources. Instead, the most common cause of lead concentrations in potable water is contamination from the gradual corrosion of water supply pipes and plumbing fixtures as well as the solder, or flux, used for installation and repair. Most current regulatory efforts to control lead in drinking water focus primarily on reducing the lead content of these system components.

On June 29, 2011, Gov. Bobby Jindal signed Louisiana House Bill 471 and enacted Act Number 362. This Act takes effect January 1, 2013, and prohibits the use, installation, repair, introduction into commerce, or sale of pipes, fittings, fixtures, solder, or flux that are not "lead free" when used for conveying water for human consumption.

The Department of Health and Hospitals (DHH) has prepared this fact sheet to help clarify how Act 362 redefines "lead-free" and how these new, lowered lead limits will affect various components used in the construction of new and existing plumbing and water distribution projects. In addition, this fact sheet will describe the key components of implementation including code development, applicable performance and material standards, enforcement and exceptions.

### Reduced Lead Requirements of Act 362 (effective January 1, 2013):

Under Act 362, the lead content of pipes, fittings and fixtures will be reduced from not more than 8.0 percent lead to not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.

All pipe, plumbing fittings and fixtures, solder or flux used in the installation or repair of any public water system or any plumbing in a facility providing water for human consumption must meet the new low lead requirements, except when necessary for the repair of leaded joints of cast iron pipes.

**EXCEPTIONS:** The following materials are not required to meet the reduced lead requirements of Act 362:

- ▶ Pipes, pipe fittings, plumbing fittings or fixtures, including backflow preventers, which are used exclusively for non-potable services such as manufacturing, fire sprinkler system, industrial processing, irrigation, outdoor watering or any other uses where the water is not anticipated to be used for human consumption; or
- ▶ Toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, showers, safety shower flushes, service saddles or water distribution main gate valves that are two inches in diameter or larger.
- ▶ Materials purchased or acquired by a public water system prior to January 1, 2013, can continue to be utilized until January 1, 2014.

In addition to the installation requirements, no person shall introduce into commerce any pipe, pipe or plumbing fitting or fixture intended to convey or dispense water for human consumption through drinking or cooking that is not lead-free, including kitchen faucets, bathroom faucets or any other end-use devices intended to convey or dispense water for human consumption through drinking or cooking.

### Louisiana Administrative Code (LAC) Updates:

These new low-lead requirements will be published in Parts XII (Water Supplies) and XIV (Plumbing)

**OVER**



of LAC Title 51 (Sanitary Code). Under Parts XII and XIV, all applicable potable water piping, fixtures, pipe related products and materials that join or seal pipes shall be evaluated and listed as conforming with NSF/ANSI 372-Drinking Water System Components, Lead Content or shall be certified to be lead-free by an independent American National Standards Institute (ANSI)-accredited third party testing laboratory, inspection agency or other organization concerned with product evaluation.

#### **Enforcement:**

The enforcement of the lead reduction law will be handled during plan reviews, permit inspections, surveys, complaints, etc. For plumbing-related violations, the enforcement will typically be handled at the local level in accordance with their ordinances, laws or other regulations. When handled at the state level, the enforcement process will be in accordance with Part I of LAC Title 51.

#### **Potential Health Effects of Lead Exposure:**

- ▶ Lead is a neuro-toxic metal that accumulates in both soft tissue and bones. Even low-level exposure can lead to a range of adverse health effects, including brain, nervous system and blood disorders.
- ▶ Children and Infants— Exposure can result in delays in physical or mental development, reduced intelligence, learning disabilities, attention deficit disorder, behavioral problems, stunted growth, impaired hearing and kidney damage.
- ▶ Adults— Exposure can result in kidney problems, high blood pressure, nerve disorders, fertility problems, muscle and joint pain, irritability, memory and concentration problems. Pregnant women can pass lead contained in their bodies to their fetuses.

#### **Highlighted Facts:**

- ▶ Act 362 Becomes Effective January 1, 2013.
- ▶ Prohibits the use, installation or repair, introduction into commerce, or selling of pipes, fittings, fixtures, solder, or flux that is not “lead-free” when used for conveying water for human consumption.
- ▶ Pipes, fittings and fixtures that are used exclusively for non-potable services are not required to meet the reduced lead requirements of Act 362.
- ▶ Materials purchased or acquired by a public water system prior to January 1, 2013 can continue to be utilized until January 1, 2014.
- ▶ All applicable piping, fixtures, pipe-related products and materials that join or seal pipes shall be evaluated and listed as conforming with NSF/ANSI 372-Drinking Water System Components, Lead Content or shall be certified to be lead free by an independent ANSI-accredited third party testing laboratory.

#### **State of Louisiana Safe Drinking Water Program Department of Health and Hospitals Office of Public Health**

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Baton Rouge, LA 70802

**Phone: 225-342-7499**

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[www.dhh.la.gov/SafeDrinkingWater](http://www.dhh.la.gov/SafeDrinkingWater)

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02512 - VALVES**

**PART 1 - GENERAL**

1.01 SCOPE

- A. The work shall consist of the requirements for furnishing and installing valves as indicated on the Drawings or as directed by the Engineer. The work shall include all labor, materials, equipment and appurtenances necessary for complete and operable valves.
- B. Related Sections
  - 1. Division 1 - General Requirements
  - 2. Section 02315 - Excavation, Backfilling and Compaction
  - 3. Section 02510 - Water Distribution Lines
  - 4. Section 02513 - Hydrants
  - 5. Section 02514 - Water Meters

1.02 REFERENCED STANDARDS/DOCUMENTS

The latest edition of the publications listed below for a part of these specifications to the extent referenced. The publications are referred to in text by the basic designation only.

- 1. ASTM A126 "Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings"
- 2. ASTM A536 "Standard Specification for Ductile Iron Castings"
- 3. ASTM A743 "Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application"
- 4. AWWA C111 "American National Standard for Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings"
- 5. AWWA C504 "AWWA Standard for Rubber Seated Butterfly Valves"
- 6. AWWA C507 "AWWA Standard for Ball Valves, 6" through 48"
- 7. AWWA C509 "AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service"
- 8. AWWA C550 "AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants"

1.03 SUBMITTALS

- A. All products and/or materials to be used in this project shall be submitted to the Engineer in accordance with Section 01340 of Division 1 - General Requirements.
- B. Manufacturers shall submit with his shop drawings any recommended installation procedures which, when approval by the Engineer, shall become the basis for inspecting, accepting, and/or rejecting actual installation procedures used on this project.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02512 - VALVES**

- C. The manufacturers shall submit in writing a certification that the product meets these Specifications. Certification shall be in the format similar to the certification form shown at the end of Section 01340.

**1.04 DELIVERY, STORAGE AND HANDLING**

**A. Preparation for Transport.**

Prepare valves for shipping as follows:

1. Ensure valves are dry and internally protected against rusting and corrosion.
2. Protect valve ends against mechanical damage to threads, flange faces, and weld end preps.
3. Set valves in best position for handling. Globe, and gate valves shall be closed to prevent rattling; ball and plug valves shall be open to minimize exposure of functional surfaces; butterfly valves shall be shipped closed or slightly open; and swing check valves shall be blocked in either closed or open position.

**B. Storage**

Use the following precautions during storage:

1. Do not remove valve end protectors unless necessary for inspection; then reinstall for storage.
2. Protect valves against weather. Where practical store valves indoors. Maintain valve temperature higher than the ambient dew point temperature. If outdoor storage is necessary, support valves off the ground or pavement and protect in watertight enclosures.

**C. Handling**

1. Valves whose size requires handling by crane or lift shall be slung or rigged to avoid damage to exposed valve parts. Handwheels and stems, in particular, shall not be used as lifting or rigging points.

**PART 2 - PRODUCTS**

**2.01 VALVES**

**A. Gate Valves**

1. Valve 2" and Larger: Iron-body, bronze trim, resilient-seated non-rising stem with square nut, mechanical joint or flanged ends conforming to AWWA C-515, latest revision.
2. Valves smaller than 2": Iron-body, brass mounted, or all brass construction, IPS ends.
3. Valves installed above ground shall be equipped with handwheel; direction of opening indicated by an arrow cast on operating nut handwheel.
4. Valves to be manufactured by M & H, Mueller, U.S. Pipe, Clow, or approved equal.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02512 - VALVES**

5. Counting to conform to AWWA C-550.

**B. Valve Boxes**

1. Valve boxes shall be cast iron, heavy roadway type, adjustable top section and inside diameter of not less than 5 inches.
2. Valve box and cover to be V-8460 Series as manufactured by East Jordan Iron Works, Inc. or approved equal.

**C. Ball Valves**

1. Ball valves up to 2": Brass body, teflon coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, AWWA/IPS inlet end as applicable, IPS outlet.

**D. Butterfly Valves**

1. Valves shall be iron-body, ductile iron disc, resilient replaceable seat; conforming to AWWA C-504.
2. Ends shall be flanged (wafer suitable for installation between full faced flanges for valves 3" - 10") or mechanical joint in accordance with AWWA-C111.
3. Valve disc shall be the off-set design, provide 360° uninterrupted seating and of the flow through type for sizes 30" and larger.
4. Natural rubber resilient seat bonded to 18-8 Type 304 Stainless steel retaining ring secured to the disc by 18-8 Type 304 SS screws.
5. Coatings to conform to ASTM C550, latest revision.
6. Valves to be manufactured by Pratt, or approved equal.

**E. Lever and Spring Check Valves**

1. The valve body shall be of cast iron (ASTM A126-B) and with a cast iron disc of same material. The hinge shaft shall be of 18-8 stainless steel with the disc arm and counterweight arm keyed thereon. The body seat shall be all stainless steel. The spring arm may be of the manufacturer's standard construction. The hinge shaft packing gland shall be of the adjustable packing gland design employing a compression type packing. Simple o-ring shaft seals will not be accepted.
2. The check valves shall be manufactured by Empire Speciality Co., Inc. or Mars, Pennsylvania, Fig. 230 or approved equal.

**F. Silent Check Valves**

The valve body shall be of cast iron (ASTM A126-B) with a replaceable bronze seat. Plug and replaceable bushing shall also be bronze. Spring and seat retaining screws shall be of 303/304 stainless steel for ease of replacement when required. The valve seating arrangement shall consist of an o-ring seal contained in a dovetail groove providing a true pressure metal-to-metal seating.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02512 - VALVES**

The valve shall be manufactured by Empire Specialty Valve Co., Inc., Figure No. 280 or approved equal.

G. Plug Valves

1. Valves shall be of the non-lubricated eccentric type with an elastomer covering all seating surfaces. The elastomer shall be suitable for the service intended. Flanged valves shall be manufactured in accordance with ANSI B16.1 Class 125/150, including facing, drilling and flange thickness. Mechanical joint ends shall be in compliance with AWWA/ANSI C-111-92. Ports shall be round with a minimum of eighty-one (81) percent port area of sizes 2 1/2" through 12" to facilitate "pigging" when required. Valves 14" and larger shall be of a rectangular port design with a minimum of eighty-one (81) percent port area.
2. Valve bodies shall be of ASTM A-126 Class B cast iron in accordance with AWWA C-504-87 Section 5.2.1 Valves three (3) inches and larger shall be furnished with a welded-in overlay seat of not less than ninety (90) percent nickel in accordance with AWWA C-507. Sprayed, plated, or screwed-in seats are not acceptable.
3. Plugs shall be of ASTM A-536 Grade 65-45-12 in compliance with AWWA C-504-87 Section 2.2.2. The plugs shall be one (1) piece solid construction with PTFE thrust bearings on the upper and lower bearing journals to reduce torque and prevent dirt and grit from entering the bearing and seal area.
4. Valves shall be furnished with replaceable sleeve type bearings conforming to AWWA C-504-87, Section 3.6.1 and AWWA C-507-85, Section 3.2.4. Bearings shall be of centered, oil impregnated type 316 stainless steel ASTM A-743 Grade CF-8M. Valve shaft seals shall be of the "U" cup type in accordance with AWWA C-504-87, Section 3.7.2. Seals shall be self adjusting and repackable without removing the bonnet from the valve.
5. Wrenches operated valves 2 1/2" - 8" shall be capable of being converted to worm gear or automated operation without removing the bonnet or plug from the valve. All wrench operated valves shall be equipped with a two (2) inch square nut for use with removable levers or extended "T" handles.
6. Valves shall be designated and manufactured to shut off bubble tight at 175 psi in either direction for valves 2 1/2" through twelve (12) inches and at 150 psi in either direction for valves fourteen (14) inches through thirty-six (36) inches. Valves forty-two (42) inches and larger shall be certified bubble tight in both direction at 125 psi.
7. Each valve shall be given a hydrostatic and seat test with the test results being certified. Certified copies of Proof-of-Design test reports shall be furnished as outlined in AWWA C-504-87, Section 5.2.4 when requested.
8. Plug valves shall be Dezuric, APCO, Clow, M & H or approved equal.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02512 - VALVES**

**PART 3 - EXECUTION**

3.01 **EXAMINATION**

- A. Verify water main size and location, are as indicated.

3.02 **INSTALLATION**

- A. Install in accordance with manufacturer's installation procedures/recommendations.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02513 - HYDRANTS**

**PART 1 - GENERAL**

1.01 SCOPE

- A. The work shall consist of the requirements for furnishing and installing hydrants as indicated on the Drawings or as directed by the Engineer. The work shall include all labor, materials, equipment and appurtenances necessary for complete and operable hydrants.
- B. Related Sections
  - 1. Division 1 - General Requirements
  - 2. Section 02315 - Excavation, Backfilling and Compaction
  - 3. Section 02510 - Water Distribution Lines
  - 4. Section 02512 - Valves

1.02 REFERENCED STANDARDS/DOCUMENTS

The latest edition of the publications listed below for a part of these specifications to the extent referenced. The publications are referred to in text by the basic designation only.

- 1. AWWA C502 - "AWWA Standard for Dry-Barrel Fire Hydrants"

**PART 2 - PRODUCTS**

2.01 HYDRANTS

- A. Fire Hydrants
  - 1. Fire hydrants shall be cast iron bodied, fully bronze mounted, suitable for a working pressure of 250 psi and shall meet all requirements of AWWA Specifications C502, latest revision. Each hydrant shall be given a 500 psi hydrostatic test in the shop.
  - 2. The waterways of hydrants shall be as free as possible of obstructions, sharp turns, corners or other cause for resistance. The base of the hydrant shall be have a mechanical joint connection.
  - 3. Hydrants located on main 6 inches and larger shall have 6 inch leads and 6 inch mechanical joint connection, and shall be equipped with two 2 1/2 inch branch nozzles with threads for hose connections and one brass nozzle with threads for pumper coupling. The bottom valve of the hydrant shall be not less than 5 1/4 inches in diameter.
  - 4. Hydrants located on 4 inch mains shall have 4 inch leads and 4 inch mechanical joint connections and shall be equipped with two 2 1/2 inch branch nozzles with threads for hose connections. The bottom valve of the hydrant shall be not less than 4 1/4 inches in diameter.
  - 5. Nozzle caps shall be securely fastened to hydrants and shall be threaded to fit nozzles.
  - 6. Threads for hose and pumper connections shall match those of existing hydrants. Hydrants shall open by turning in a counterclockwise direction.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02513 - HYDRANTS**

7. The hydrant main valve shall be of the compression type, closing with pressure. The valve shall be faced with rubber, or other approved material. Hydrant shall be traffic model and shall be breakable on impact without loss of water.
8. Drain valves shall be automatic and positive acting. When the main valve is closed, drain valves shall automatically open, insuring rapid and complete drainage of the hydrant riser. They shall close automatically when the main valve is opened.
9. Hydrants shall have a safety "breakable" section located above ground line. The distance from the ground line of hydrant to the top of the hydrant lead shall not be less than thirty (30") inches. Hydrants shall come with one shop coat of red lead. After installation, skinned or scratched surfaces of hydrants shall be wire brushed and touched up with one (1) coat of Tnemec 99-D Dark Red Primer, or equal. All exposed surfaces shall be given one (1) final field coat of Tnemec Gloss 642-P Bright Red, or equal.
10. The Contractor shall provide the Owner with three (3) cartons of collision breakable repair parts for the hydrants and one (1) valve wrenches. All new hydrants in the project shall be Mueller, M & H, Kennedy or pre-approved equal.

**PART 3 - EXECUTION**

**3.01 INSTALLATION**

- A. Support fire hydrants at base on foundation at least eighteen (18") inches square of solid concrete pad (2500 psi) as shown on Plans. Set concrete foundation on firm, solid ground properly graded.
- B. Provide adequate drainage for hydrants when closed by filling circular space around hydrant with at least 7 cubic feet of clean gravel. Place gravel carefully, so as not to displace hydrant or valve which has been connected.
- C. Before setting, clean hydrants completely free of dirt and other foreign matter. Set hydrants solidly with concrete thrust blocks behind barrel and behind tee connection to prevent movement of pipe in joints, or of hydrant.
- D. Locate all hydrants where shown on the drawings or where indicated by the Engineer, and so that damage from vehicles and/or injury to pedestrians is minimized.
- E. When placed behind curb, set hydrant barrel so that no portion of pumper or hose nozzle cap shall be less than (6") inches or over twelve (12") inches from gutter face or curb, or less than twenty (20') feet from curb line intersection.
- F. When set in lawn space (parkway) between curb and sidewalk or between sidewalk and property line, no portion of hydrant or nozzle cap shall be within six (6") inches of sidewalk.
- G. All hydrants shall stand plumb and shall have their nozzles parallel with or set at right angles to curb with pumper nozzles facing street curb. They shall conform to established grade, with nozzles at least eighteen (18") inches above ground.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02513 - HYDRANTS**

- H. All hydrants shall be set to a depth and to the details as shown on the plans and as specified. They shall be set at a depth so that the ground line beading shall be at the same elevation as the existing ground line.
- I. Backfill above gravel shall be thoroughly tamped. Care shall be taken to keep the drain holes clean.

***END OF SECTION***





**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02760 - TRAFFIC SIGNING**

**PART 1 - GENERAL**

1.01 SCOPE OF WORK

- A. This work consists of furnishing and installing traffic signs with accessories and parts of specified materials, sizes, shapes, weights, and designs.

**PART 2 - PRODUCTS**

2.01 GENERAL

- A. Materials for temporary signs, barricades, barriers and related devices shall comply with Section 713 of the Louisiana Department of Transportation and Developments' 2006 edition of the Louisiana Standard Specifications for Roads and Bridges.

**PART 3 - EXECUTION**

3.01 GENERAL

- A. In general, the work and materials shall conform to Section 713 the Louisiana Standard Specifications for Roads and Bridges, 2006 Edition, and the Manual on Uniform Traffic Control Devices.
- B. The location of all signs shall generally be as shown on the plans or as directed by the Project Engineer.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**SECTION 02920 - SEEDING, FERTILIZING AND AGRICULTURAL LIME**

**PART 1 - GENERAL**

1.01 DESCRIPTION

This work consists of preparing seed beds, furnishing and sowing grass seed, and furnishing and applying commercial fertilizer and agricultural lime on the areas designated on the Plans as directed in accordance with these Specifications.

**PART 2 - PRODUCTS**

2.01 MATERIALS

A. Seed

Seed shall conform to Subsection 1018.18 of the LA DOTD Standard Specifications for Roads and Bridges, 1992 Edition. The Contractor shall furnish the Engineer with a copy of the laboratory test report as described in Subsection 1018.18 (b) of said DOTD Standard Specifications.

B. Water

Water may be obtained from any source, except brackish or oily water shall not be used.

C. Commercial Fertilizer

Fertilizer shall be an approved brand conforming to requirements of the LA Department of Agriculture. Fertilizer shall be either 8-8-8, 12-12-12, 13-13-13, or 16-16-16, and shall conform to Subsection 1018.16 of said DOTD Standard Specifications.

D. Agricultural Lime

Agricultural lime shall conform to Subsection 1018.17 of said DOTD Standard Specifications. The material shall be delivered either in sacks or bulk.

**PART 3 - EXECUTION**

3.01 APPLICATION

A. Preparation of Seed Bed

1. Seed beds shall be prepared by disking, harrowing, or other approved methods.
2. Soil shall be thoroughly pulverized to a minimum depth of three inches (3") and leveled as directed.
3. Hardpan areas shall be rototilled if necessary to insure that soil is in condition to receive and sprout seed.
4. If the Contract requires topsoil, fertilizer, or agricultural lime, they shall be incorporated at this time. Slopes shall be smoothed to grade and rolled prior to seeding.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 2 - SITE CONSTRUCTION**

**B. Commercial Fertilizer**

Fertilizer shall be uniformly broadcast over area to be fertilized by either hand or machine methods. The approximate rate of fertilizer application shall be as follows:

<u>TYPE</u>	<u>POUNDS PER ACRE</u>
8-8-8	1000
12-12-12	667
13-13-13	615
16-16-16	500

The rate per acre shall be increased or decreased as directed.

Fertilizer applied after surface dressing shall be thoroughly incorporated in the soil by light disking or harrowing. Fertilizer may be applied before final disking or harrowing during surface dressing or if dressed by hand, it may be applied before packing or leveling.

**C. Agricultural Lime**

Agricultural lime shall be spread uniformly at the rate of two (2) tons per acre with a spreader. Lime must be applied prior to seeding, and may be applied in conjunction with fertilizer. Several passes may be required to obtain the desired application rate.

After application, the areas shall be disked, harrowed, or rototilled to incorporate lime or lime-fertilizer and the top three to six inches (3" - 6") of soil.

**D. Seeding**

Seed shall be planted within the dates shown in the following table, unless otherwise permitted in writing:

<u>MIXTURES</u>	<u>SEED MIXTURE</u>	<u>POUNDS PER ACRE</u>	<u>PLANTING DATES</u>
A	Kentucky 31 Fescue Crimson Clover (1)	30 10	September thru February
B	Hulled Bermuda	30	March thru September
C	Kentucky 31 Fescue	40	September thru February
D	Crimson Clover (1)	40	September thru February

NOTE: (1) Inoculated prior to planting with proper bacterial culture.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 02 - SITE CONSTRUCTION**

**SECTION 02975 - ASPHALT CONCRETE PATCHING AND JOINT REPAIR**

**PART 1 - GENERAL**

1.01 SCOPE OF WORK

- A. The work covered by this Section consists of furnishing all labor, supervision, equipment, materials, and performing all operations in connection with the patching and joint repair of existing asphaltic concrete pavements.
- B. Related Sections
  - 1. 02740 Asphaltic Concrete Paving

**PART 2 - PRODUCTS**

2.01 MATERIALS

- A. Asphaltic Concrete for pavement patching shall be any type mixture listed in Section 02740 of these Specifications, except Type 5B.
- B. Tack coat shall be cutback asphalt (Grade RC-70 or RC-250) or emulsified asphalt (Grade SS-1, SS-1h, CRS-2, CMS-2 or CSS-1h) conforming to Section 02740 of these Specifications.

2.02 EQUIPMENT

- A. Equipment furnished shall meet the requirements of Section 02740 of these Specifications.

**PART 3 - EXECUTION**

3.01 GENERAL CONSTRUCTION REQUIREMENTS

- A. Remove existing defective surfacing and base materials to a minimum depth of eight inches (8") or deeper until firm support is reached. Excavate as directed to form a regular rectangular shaped patch.
- B. Patch shall extend at least eight inches (8") into sound pavement outside the defective areas. The excavation shall have neat straight lines and clean vertical cut faces.
- C. Position patch so that one (1) side of the patch [one (1) set of faces] is located at a right angle to the direction of traffic flow.
- D. Bottom of patch shall be of a uniform grade and cleaned of all loose or surplus material.
- E. For joint repair, contact surfaces of existing pavement shall be cleaned and a thin, uniform asphaltic tack coat applied prior to placing asphaltic mixture in the joint.

3.02 PATCHING AND JOINT REPAIR

- A. Placement of asphaltic concrete shall conform to the requirements of Section 02740 of these Specifications, except that priming of the subgrade will not be required.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 02 - SITE CONSTRUCTION**

**SECTION 02975 - ASPHALT CONCRETE PATCHING AND JOINT REPAIR**

- B. Contact surfaces of pavement shall be cleaned and an uniform coat of asphaltic tack coat applied prior to the placement of the asphaltic concrete against them.
- C. Patches shall not be overlayed for a minimum of one (1) calendar day after installation.
- D. Spreading, finishing and compaction shall leave the surface smooth and level with, or slightly above, the edge of existing pavement.

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 02 - SITE CONSTRUCTION**

**SECTION 02980 - RIGID PAVEMENT PATCHING AND JOINT REPAIR**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. The work covered by this Section consists of furnishing all labor, supervision, equipment, materials, and performing all operations in connection with the patching and joint repair of Portland cement concrete pavements.
- B. Related Sections
  - 1. 03100 Concrete Forms and Accessories
  - 2. 03200 Concrete Reinforcement
  - 3. 03300 Cast-in-Place Concrete
  - 4. 03390 Concrete Curing

**1.02 SUBMITTALS**

- A. Mix design shall be submitted to Engineer for approval in accordance with the requirements of Division 1, Section 01340.
- B. Concrete mix shall be designed in accordance with ACI 211.1 and meet the following requirements:

Design Compressive Strength: 3500 psi @ 48 hours (unless noted otherwise on Drawings)
- C. Trial mixes will be required for the following:
  - 1. Mix designs containing fly ash as partial replacement for cement.
- D. Review and acceptance of mix design does not release the contractor from the responsibility of producing concrete which meets the minimum requirements of this Section.

**1.03 DELIVERY, STORAGE AND HANDLING**

- A. Requirements of this Section shall conform to the requirements of Section 03300 of these Specifications.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Materials shall conform to the requirements of Section 03300 of these Specifications.

**PART 3 - EXECUTION**

**3.01 CONSTRUCTION REQUIREMENTS**

- A. Patching with Portland Cement Concrete shall conform to Section 601 of the Louisiana Standard Specifications for Roads and Bridges, except that either machine or hand finishing methods may be used.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 02 - SITE CONSTRUCTION**

**SECTION 02980 - RIGID PAVEMENT PATCHING AND JOINT REPAIR**

- B. When granular material subbase is specified, the granular material shall be placed in accordance with Section 723 of the Louisiana Standard Specifications for Roads and Bridges.

**END OF SECTION**



## **DIVISION 3 - CONCRETE**



**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03100 - CONCRETE FORMS AND ACCESSORIES**

**PART 1 - GENERAL**

1.01 SCOPE

- A. This Section covers the requirements for concrete forms and accessories to be used in the construction of cast-in-place concrete

1.02 APPLICABLE CODES

- A. ACI-347 - "Recommended Practice for Concrete Formwork"

1.03 RELATED SECTIONS

- A. Section 03300 - Cast-in-place concrete

**PART 2 - PRODUCTS**

2.01 MATERIALS

- A. Forms

Forms shall be of wood, plywood, or steel.

**PART 3 - EXECUTION**

3.01 ERECTION and REMOVAL

- A. General Requirements

Forms shall be suitable for the work and shall conform to the shape, lines and dimensions of the structures to be built so shown on the Drawings. The Contractor shall be responsible for the adequacy of the forms and form supports. Forms shall be cleaned and inspected immediately prior to placing concrete. Temporary openings shall be provided where necessary to facilitate cleaning and inspection just prior to placing concrete. All exposed joints, edges, and corners shall have a formed three-fourths inch ( $\frac{3}{4}$ " ) chamfer unless otherwise indicated on the Drawings. Concrete for footings may be placed in excavations without forms.

- B. Materials for Forms

1. Forms for concrete pavements, except on curves, shall be steel; on curves, flexible or curved forms of plywood or steel may be used.
2. Forms for surfaces exposed to view shall be of steel, metal surfaces on wood, or plywood. Forms shall be built so that when removed, the concrete will be left free from offsets, fins, ridges, or other unsightly defects.
3. Wooden forms for surfaces not exposed to view may be built of sound No. 1 yellow pine, Douglas fir, or equivalent acceptable lumber, dressed on all sides and neatly fitted.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03100 - CONCRETE FORMS AND ACCESSORIES**

4. Forms for surfaces requiring special finishes shall be plywood with a minimum thickness of five-eighths inch ( $\frac{5}{8}$ " ) for straight sections and three-eighths inch ( $\frac{3}{8}$ " ) for curved sections. Plywood shall be made with a waterproof glue and manufactured especially for concrete form work. Plywood shall be free of raised grain, torn surfaces, worn edges, patches, or other surface defects which would impair the texture of the concrete surface.
5. Forms for beams and girder soffits shall be constructed with nominal two inch (2") lumber, and all joints shall be tight and even. Beam and girder soffits shall be sufficiently braced, shored, and wedged to prevent deflection.

C. Coating

1. Before placing the concrete, the contact surfaces of forms shall be coated with a non-staining mineral oil or suitable non-staining form coating compound or shall be given two (2) coats of nitrocellulose lacquer, except as specified otherwise. Mineral oil shall not be used on forms for surfaces which are to be painted. For surfaces not exposed to view in finished structure and when temperature is above 40° F, forms may be wetted thoroughly with clean water. All excess coating shall be removed by wiping with cloths. Reused forms shall have the contact surfaces cleaned thoroughly; those which have been coated shall be given an additional application of the coating.

D. Form Ties, Hangers, and Clamps

1. Only form ties, hangers, and clamps approved by the Engineer shall be used, and they shall be of such type no metal will be closer than one-half inch ( $\frac{1}{2}$ " ) from the surface. Wire ties will not be permitted. Lugs, cones, washers, or other devices which leave holes or depressions at the surface of the concrete greater than seven-eighths inch ( $\frac{7}{8}$ " ) diameter shall not be fitted within the forms. The spacing of form ties, hangers, and clamps shall be strictly in accordance with manufacturer's directions.

E. Removal of Forms

1. In general, forms shall not be removed until the concrete has hardened sufficiently to support its own load safely plus and superimposed loads that might be placed thereon. In any event, forms shall be left in place at least the minimum required length of time specified below, after the date of placing concrete:

Columns	2 days
Side forms for girders and beams	2 days
Bottom forms of slabs	7 days
Bottom forms of beams and girders	7 days
Walls	3 days

The removable portion of form ties shall be withdrawn from the concrete immediately after taking down the forms. The holes left by such ties shall be filled with grout and the surface shall be finished with a steel spatula or rubbed with sack cloth.

Care shall be taken in removing forms, wales, shorings, supports, and the form ties to avoid spalling in marring the concrete. The required rubbed finish and such patching as may be necessary shall be started within one (1) day after removal of the forms.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03100 - CONCRETE FORMS AND ACCESSORIES**

F. Tolerances and Variations

The Contractor shall set and maintain concrete forms to ensure that, after removal of the forms and prior to patching and finishing, no portion of the concrete work will exceed any of the tolerances specified. Variations in floor levels shall be measured before removal of supporting shores. The Contractor shall be responsible for variations due to deflection, when such results in concrete quality other than that which has been specified. Except as otherwise specified herein, tolerances shall conform to ACI-347.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03200 - CONCRETE REINFORCEMENT**

**PART 1 - GENERAL**

1.01 SCOPE

- A. This Section covers the requirements for reinforcing steel to be used in the construction of cast-in-place concrete.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-in-place Concrete
- B. Division 1, Section 01340 - Shop Drawings, Project Data, and Samples

1.03 SUBMITTALS

- A. Shop drawings shall be submitted in accordance with Division 1, Section 01340.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Manual of Standard Practice of the Concrete Reinforcement Steel Institute (CRSI). The tags shall be made of durable material and marked in a legible manner with waterproof markings. There shall be at least one (1) tag per bundle attached by wire. The tags shall show producer's name, brand or trademark, size of reinforcing, number of pieces, grade, heat number, ASTM Designation, and weight of bundle.
- B. Epoxy coated reinforcing steel shall be handled in a manner to avoid damage to the coating. Bundling bands shall be padded. Bundles shall be lifted with multiple supports or strongbacks to prevent abrasion to the coating due to sag.

Patching material used by the applicator and the Contractor shall be the same as the prequalified patching material. Repairs shall be made in accordance with the patching material manufacturer's recommendations.

Repairs to the coating will be required on all damaged areas larger than one-fourth inch (1/4") square. The total bar surface area covered by patching material shall not exceed two percent (2%).

Ends of coated bars cut during field fabrication shall also be coated with the patching material before rusting appears; however, the coated ends are not to be included in the two percent (2%) maximum coverage of patching material. Hairline cracks without bond loss or other minor damage on fabrication bends need not be repaired.

- C. Reinforcing steel shall be stored above ground on platforms, skids or other supports and shall be protected from damage.

The various sizes, grades, and lengths shall be plainly marked and tagged to facilitate inspection.

Epoxy coated steel bars shall be unloaded and stored on the project site in a manner to avoid damage or contamination.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03200 - CONCRETE REINFORCEMENT**

**PART 2 - PRODUCTS**

2.01 MATERIALS

A. Reinforcing Steel

1. Steel shall be deformed bars rolled from billet-steel or rail steel and conform to the requirements of ASTM A-615 - "Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" or ASTM A-616 - "Specifications for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement". Reinforcing shall be Grade 60.

B. Tie Bars

1. Tie bars shall conform to the requirements of ASTM A-615 - "Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" or ASTM A-616 - "Specifications for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement". Tie bars shall be Grade 60.

2.02 FABRICATION

- A. Bent bar reinforcement shall be cold bent to the shapes shown on the Plans. Stirrups and ties shall be bent around a pin having a diameter as specified in Table 1 below.

Table 1  
Pins for Bar Bends

<u>Bar Size</u>	<u>Minimum Pin Diameter</u>
Nos. 3 through 8	6 bar diameters
Nos. 9, 10, and 11	8 bar diameters
Nos. 14 and 18	10 bar diameters

**PART 3 - EXECUTION**

3.01 PREPARATION

- A. Before placing the reinforcing steel in the concrete, it shall be thoroughly cleaned, and shall be kept clean until the concrete is placed. If not kept clean during and after placing as specified, the steel may be required to be removed from the form, cleaned, and replaced as directed.
- B. All reinforcing steel shall be placed in conformance with the spacing, splices, and sizes shown on the Drawings or as directed by the Engineer. Steel shall be fastened in position so as to prevent its possible displacement during the placing of the forms and the pouring of the concrete. Where splices in bars are allowed, the splices shall be in accordance with ACI 318-77 Standards. Bars shall be securely fastened at crossings and splices and wherever practicable shall be supported and braced with acceptable steel chairs, steel spreaders and/or cement mortar blocks cast for this purpose. Sheets of mesh or bar mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The edge lap shall not be less than one (1) mesh in width. Before any concrete is placed, the Engineer shall have inspected and approved the placement of the steel reinforcing and given permission to place the concrete.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03200 - CONCRETE REINFORCEMENT**

C. Clear minimum coverage of concrete reinforcing bars shall be as follows:

Concrete Placed Against and Exposed to Earth	3"
Formed Concrete Against Earth	2"
Beams to Ties/Stirrups	1½"
Top and Bottom Slabs	¾"

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This Section covers the requirements for cast-in-place concrete.

1.02 RELATED SECTIONS

- A. Section 03100 - Concrete Forms and Accessories
- B. Section 03151 - Waterstops
- C. Section 03200 - Concrete Reinforcements
- D. Section 03356 - Concrete Finishing
- E. Section 03390 - Concrete Curing
- F. Section 03932 - Concrete Repair

1.03 SUBMITTALS

- A. Mix design shall be submitted to Engineer for approval in accordance with the requirements of Division 1, Section 01340.
- B. Concrete mix shall be designed in accordance with ACI 211.1 and meet the following requirements:

Design Compressive Strength - 3000 psi @ 28 days (unless noted otherwise on Plans)

- C. Trial mixes will be required for the following:
  - 1. Mix designs containing fly ash as partial replacement for cement.
- D. Review and acceptance of mix design does not release the Contractor from the responsibility of producing concrete which meets the minimum requirements of this Section.

1.04 DELIVERY, STORAGE AND HANDLING

A. Cement and Fly Ash

- 1. Transport in watertight conveyances and store in silos or other approved facilities so that protection from dampness or water intrusion is maintained.
- 2. Cement or fly ash which becomes contaminated, partially set or contains lumps of caked material will be rejected.
- 3. When the use of bagged cement or fly ash is permitted, the handling and storage will be as directed.
- 4. Different brands or types or the same brand or type from different mills shall not be mixed or used alternately unless authorized by the Engineer. Exception to this requirement may be allowed in case of plant breakdown during production to allow concrete to be furnished from another plant to finish the placement in progress.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

B. Aggregates

1. Equipment and methods for stockpiling aggregates shall be such that:
  - a. No detrimental degradation or segregation of aggregate will result.
  - b. No appreciable amount of foreign material will be incorporated into aggregate.
  - c. There will be no intermingling of stockpiled materials.

C. Concrete

1. Provide sufficient plant capacity and transporting apparatus to ensure delivery at the required rate. Rate of delivery during concrete operations shall provide for proper handling, placing and finishing of concrete and maintaining a workable surface.
2. Methods of delivery and handling concrete shall facilitate placing with a minimum of rehandling and without damage to the structure or concrete.
3. Concrete shall not be placed after initial set has been reached when tested in accordance with ASTM C953.

**PART 2 - PRODUCTS**

2.01 **MATERIALS**

A. Portland Cement

1. Cement shall be Type I, conforming to ASTM C150.

B. Portland - Pozzolan Cement

1. Portland - Pozzolan Cement shall conform to ASTM C595, Type IP and shall contain twenty percent (20%) plus or minus five percent ( $\pm 5\%$ ) by weight fly ash.
2. Alkali content calculated as sodium oxide equivalent shall not exceed 0.60% by weight.
3. Fly ash shall conform to ASTM C618, Class C or F, except that loss of ignition shall not exceed six percent (6%) by weight.

C. Aggregates

1. Fine Aggregates

- a. Fine aggregates for concrete shall meet the requirements of ASTM C33, latest revision.

2. Course Aggregates

- a. Course aggregates for concrete shall meet the requirements of ASTM C33, latest revision. Maximum size shall be one inch (1").

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

The following maximum limitations shall apply:

Soft particles:	2.0%
Chert as soft impurity (defined in Table 3 of ASTM C33):	1.0%
Total of soft particles and chert as a soft impurity:	2.0%
Flat and elongated particles [long dimensions more than five (5) times short dimensions]:	15.0%

**D. Admixtures**

A retarding densifier, such as "Plasiment" by Sika Corporation or equal, conforming to ASTM C494 Type D shall be used in all concrete for liquid holding or conveying structures. The dosage shall be as recommended by the manufacturers representative, who shall supervise it as addition to the concrete mix.

Except as specified herein, admixtures will be permitted to be used in concrete only with written permission of the Engineer and subject to the following:

1. An admixture shall be shown capable of maintaining essentially the same composition and performance throughout the work.
2. Admixtures containing chloride ions shall not be used if their use will produce a deleterious concentration of chloride ion in the mixing water.
3. Air-entraining admixtures, retarding admixtures, accelerating admixtures, water-reducing and retarding admixtures, and water-reducing and accelerating admixtures shall conform to "Specification for Chemical Admixtures for Concrete," ASTM C494, latest revision.

**E. Water**

Water for use in concrete shall be reasonably clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. Water which is suitable for drinking or ordinary household uses may be accepted for use with the cement without being tested.

**F. Expansion Joint Filler**

Expansion joints shall be made using one-half inch ( $\frac{1}{2}$ ") premolder joint filler conforming to ASTM D1751, latest edition. Joint filler shall be Sonoelastic SL1 as manufactured by Sonneborne or approved equal.

**G. Cement Grout**

Concrete material for grouting around pipes, repairing holes and grouting under machinery and equipment shall be a non-shrink, pre-mixed mortar. Grout shall conform to Corps of Engineers Specification CRD-C-588-78, latest revision. The mix shall attain a compressive strength of at least 7,500 psi after seven (7) days and 9,000 psi after twenty-eight (28) days. Grout shall be mixed as directed by the manufacturer.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

**PART 3 - EXECUTION**

**3.01 MIX PROPORTIONING**

**A. Liquid Holding and Conveying Structures**

Concrete shall be watertight and resistant to naturally occurring or commonly used chemicals. All material shall be so proportioned as to produce a well graded mixture of high density and maximum workability, with a specified twenty-eight (28) day compressive strength as required. The concrete shall be proportioned in accordance with ACI 211 Standards, latest revision, subject to the following special requirements:

1. Maximum aggregate size shall be one inch (1").
2. Minimum cement content shall be 564 lbs. per cubic yard of concrete.
3. Maximum water-cement ratio: 0.45. If a Pozzolan is used in the concrete the maximum water-cement plus Pozzolan ratio should be 0.45.
4. Air content (as determined in accordance with ASTM C231 or ASTM C173, latest revision) shall be plus or minus one percent ( $\pm 1\%$ ).
5. Slump, as determined in accordance with ASTM C143, latest revision:
  - 1 inch minimum
  - 3 inch maximum for footings, caissons, substructure walls
  - 4 inch maximum for slabs, beams, reinforced walls, columns

**B. Other Structures**

Mix proportioning for other structures shall be in accordance with Chapter 3 of ACI 301-72, latest revision.

**3.02 MIXING AND BATCHING**

Concrete shall be mixed only in quantities needed for current use. Concrete which shows evidence of partial set or which has been retempered or remixed shall not be used. Mixing shall be in accordance with ACI 301-72, latest revision.

**A. Machine Mixing**

If the concrete is to be mixed at the job site, an approved batch mixer shall be used, except when otherwise authorized by the Engineer. The mixer shall be capable of combining the aggregates, cement, and water within the specified time into a thoroughly mixed and uniform mass, and discharging the concrete without segregation. The mixer shall be equipped with an approved batch meter and timing device which will automatically lock the discharge lever during the time of mixing, and a means of accurately measuring the water, unless otherwise authorized. Before any mixing is begun, all equipment used in the mixing operation shall be thoroughly cleaned of all loose particles of old concrete, left over aggregates, ice, debris and other such foreign substances.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

Each batch of concrete shall be mixed for one and one-half (1½) minutes after all the material composing the batch, including the water, have been deposited simultaneously in the mixture drum. The mixer shall be entirely emptied after each batch.

Hand mixing will not be permitted.

**B. Ready Mixed Concrete**

Ready mixed concrete shall include both central mixed and transit mixed concrete, and all the specification requirements covering materials, proportioning, and mixing, and batching, as set forth in the ASTM Standards for "Ready Mixed Concrete," C 94, latest revision, shall apply unless otherwise specified herein. The concrete shall be delivered and placed in the work no later than one hundred twenty (120) minutes after the water has been added, provided that mixing has been continuous in the truck agitator. When ready mixture concrete is used for a continuously poured concrete section, the elapsed time between batches shall be no more than twenty (20) minutes. Non-agitating type trucks shall not be used to haul ready mixed concrete under any circumstances.

**1. Transit Mixed Concrete**

When the concrete is transit mixed, the truck mixer shall be of an approved revolving drum or revolving blade type.

**2. Central Mixed Concrete**

When a central mixing plant is used the concrete shall be delivered in approved truck agitators or truck mixers.

**C. Retempering**

Retempering will not be permitted except in case of emergency and only then in accordance with special instructions of the Engineer. In general, all concrete or mortar which has partially hardened shall be wasted and not used in the work.

The Contractor shall provide sufficient and suitable equipment and labor to assure that the concrete when deposited in the forms shall have the quality and consistency specified regardless of the methods of transporting, handling, placing, and working.

**1. Transporting and Placing Concrete:**

Concrete shall be transported and placed by methods which will prevent segregation or loss of materials.

**D. Joints**

**1. Expansion Joints**

Expansion joints shall be made at intervals not exceeding thirty feet (30') and at all junctions of new concrete with existing curbs, buildings, structures, walks, and drives.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

2. Construction Joints

When the placing of concrete is suspended, all necessary grooves or construction joints for joining future work shall be made before the concrete has had time to set. All construction joints shall be made in accordance with ACI 301-72, latest revision.

a. Location

The location of construction joints other than those indicated on the Drawings shall be approved by the Engineer prior to commencing work on any structure. They shall be designed and located so as not to impair the strength and appearance of the structure. All joints shall be either horizontal or vertical, unless otherwise shown on the Drawings or approved by the Engineer.

b. Keys

Keys shall be provided in all construction joints. Unless otherwise stipulated, the width of the keys shall be approximately one-third ( $\frac{1}{3}$ ) of the width of the section at that point and their depth one-third ( $\frac{1}{3}$ ) of the width.

3. Dummy Construction Joints

Dummy construction joints shall be made at intervals of five feet (5') on sidewalks.

E. Bonding Concrete and Grouting Anchor Bolts and Dowels

High strength epoxy adhesive shall be used wherever it is necessary to:

1. Bond new concrete to old concrete or to dissimilar materials such as steel, wood, brick, and plastics.
2. Grout anchor bolts, rebars, and dowels in structures.

For steel surfaces, the Contractor shall remove all oil, dirt, and contaminants with degreaser solvents and detergent. The surface will then be sandblasted and all sand and dust removed from the surface.

For concrete surfaces, the Contractor shall remove all oil, dirt, and contaminants followed by sandblasting or mechanically removing laitance from the surface. Surface shall be free of dust and standing water.

Application methods and rates shall be as per the manufacturer's instructions.

F. Pipes, Castings, and Conduits Embedded in Concrete

The Contractor shall do everything possible to have all castings and inserts delivered to the work, so that they may be placed in the forms and concreted in place. In case any castings and inserts are not in the job, the Contractor shall build keyed forms for the openings into which he can later place such castings or inserts. After the concrete is placed around the form, the Contractor shall remove the forms from the openings, and prepare the opening for placing of the casting or insert. After the casting or insert is placed, he will then build forms for concreting the opening around the casting; such forms shall be so constructed that the concrete or mortar in the highest point can be poured under a head of concrete or mortar of not less than six inches (6") and shall in every



**TECHNICAL SPECIFICATIONS**  
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**SECTION 03300 - CAST-IN-PLACE CONCRETE**

way meet with the approval of the Engineer. Where basins holding water or other liquids are involved or where leakage through the concrete so placed may occur, the concrete shall contain a waterproofing agent approved by the Engineer. All such waterproofing agents shall be used in strict accordance with the manufacturer's instructions. The Contractor shall be responsible for the watertightness of the concrete work and shall remove the forms and finish the concrete in a thorough, competent, and workmanlike manner.

**G. Cement Grout**

Concrete material for grouting around pipes, repairing holes and grouting under machinery and equipment, shall be a non-shrink pre-mixed mortar approved by the Engineer. The non-shrink mortar shall be terminated one inch (1") below the finished surface and the final inch shall be a conventional mortar material applied in a workmanlike manner to provide a neat appearing finished surface.

Cracks and marred areas are to be repaired and grouted throughout the entire concrete structure.

**3.04 TESTING**

**A. Slump Tests**

Slump tests, if ordered by the Engineer, shall be made at frequent intervals on the concrete which is to be incorporated into the work.

Failure of the concrete to satisfy the slump test shall be sufficient reason for removal of the concrete and replacement with satisfactory concrete, if, in the opinion of the Engineer, such concrete is unfit for the purpose for which it was designed. The slump test shall be performed in accordance with ASTM C143, "Slump Test," latest revision.

**B. Test Cylinders**

One (1) set of test cylinders shall be obtained for each day's pour or one (1) set for each seventy-five (75) yards poured per day. Cylinders falling below the minimum compressive strength, as hereafter specified, will be sufficient reason for the removal of the concrete and replacement with satisfactory concrete, if, in the opinion of the Engineer, such concrete is unfit for the purpose for which it was designed.

One (1) set of test cylinders shall include four (4) test cylinders six inches (6") in diameter and twelve inches (12") high. Two (2) cylinders shall be tested at seven (7) days and two (2) cylinders shall be tested at twenty-eight (28) days. These cylinders shall be made and tested in accordance with ASTM C31 and ASTM C39, latest revisions.

The making, curing, and testing of selected concrete cylinders shall be performed by a certified, independent laboratory, selected by the Engineer and paid for by the Owner.

Should the concrete fail to meet the specified twenty-eight (28) day strength, the Engineer may order tests on the hardened concrete as described in Section 1704 of ACI 301-72. If the concrete is cored and the cores fail to meet the specified twenty-eight (28) day strength, corrective actions as determined by the Engineer, shall be required by the Contractor. All such costs for the additional testing required as well as the cost for the corrective actions necessary to meet this specification shall be borne by the Contractor.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03356 - CONCRETE FINISHING**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This Section covers the requirements for finishing exposed exterior and interior concrete surfaces.

1.02 RELATED SECTIONS

- A. Section 03100 - Concrete Forms and Accessories
- B. Section 03300 - Cast-in-Place Concrete
- C. Section 03390 - Concrete Curing

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

**PART 3 - EXECUTION**

3.01 STRUCTURES AND WATER CARRYING CONDUITS

- A. Where not otherwise indicated on the Drawings, the top and bottom slabs of all structures and water carrying conduits shall be finished as follows:
  - 1. The top of the slab shall be:
    - a. Screeded to grade and cross section.
    - b. Lightly tamped as required to bring up a good bed of mortar for finishing and re-seeded as necessary.
    - c. Given a final wood and broom finish with a smooth surface which conforms with accuracy to required shape, slope, and grade.
  - 2. No further finish beyond Paragraph 1(b) above will be required on top slabs, structures, or conduits which are to be buried.
  - 3. Slabs shall be edged as appropriate.
- B. Holes produced by form ties, any other holes, honeycomb spots, broken corners or edges, and other defects on all surfaces shall be thoroughly cleaned and, where necessary, cut back to homogenous concrete. These surfaces shall be saturated with water and carefully pointed and trued with mortar composed of one (1) part of Portland Cement and two (2) parts of sand so that a smooth, even surface of uniform color and texture results.
- C. The exposed tops of walls of structures shall be brought to true level, floated to bring a workable grout to the surface, struck off and leveled where necessary with cement grout of the same proportions as the mortar of the concrete. The wall tops shall then be float finished and edged unless otherwise indicated on the Drawings. The edger used shall be of one-half inch (½") radius and shall have its flanges ground to a knife edge so as to have as little burr as possible.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03356 - CONCRETE FINISHING**

D. Rubbing and Grinding

1. In general, all concrete exposed permanently to view including the inside of basins constructed to hold water [to one foot six inches (1'6") below normal water level] shall be finished by wet rubbing. Where such wet rubbing is required, the forms shall be removed from the concrete as quickly as possible and the rubbing accomplished mechanically by a slow speed grinding wheel or manually with No. 20 carborundum stones. During the rubbing process, the concrete shall be kept thoroughly wetted and the rubbing continued until all form marks, fins, and other such irregularities have been removed and until the entire surface of the concrete is of smooth, even texture and is uniform in color. Where wet rubbing is accomplished manually, the final rubbing shall be accomplished with No. 40 carborundum stones.
2. After the concrete has hardened beyond the point where wet rubbing will be effective, it shall be accomplished mechanically with high speed grinding wheels or disks satisfactory for the purpose. Where air holes must be filled and the dry grinding is to effect the finished surface, the concrete shall first be painted with a coating of wet cement paste and then ground with a slower speed machine until the desired surface texture is obtained; additional cement paste and water shall be added as needed.

E. Building Floors

1. After the concrete has been placed, spread and compacted as specified, the floor shall be screened or struck off to the proper level. When the concrete has hardened to the point where it can no longer be dented with the finger or only a slight amount of moisture comes to the surface, it shall then be floated, mechanically with machines designed for this purpose or by hand with wooden floats. The floating shall be continued until all hollows have been filled and an even sandstone-like surface achieved.
2. A chemical hardener shall be applied to exposed interior floor of the buildings in accordance with the manufacturer's recommendations. The hardener shall be approved by the Engineer.
3. Finishes shall be as indicated below:

<u>Area</u>	<u>Type Finish</u>
Interior Floors	Light Broom
Sidewalks	Light Broom

***END OF SECTION***

**TECHNICAL SPECIFICATIONS**  
**DIVISION 3 - CONCRETE**

**SECTION 03390 - CURING**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. This Section covers the requirements for the curing of cast-in-place concrete.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-in-Place Cement
- B. Section 03356 - Concrete Finishing

**PART 2 - PRODUCTS**

2.01 CURING COMPOUNDS

Curing compound shall:

- A. Conform to ASTM C156, latest revision.
- B. Be of a nature and composition not deleterious to concrete.
- C. Be ready to use as shipped by the manufacturer.
- D. Adhere to moist concrete and which will not disintegrate, crack, peel, nor show signs of such deterioration within thirty (30) days after application under weather and working conditions.
- E. Be effective in limiting the water loss in the concrete to three and one-half percent (3½%) when applied at the rate of coverage recommended by the manufacturer.

**PART 3 - EXECUTION**

3.01 STRUCTURES AND WATER CARRYING CONDUITS

All concrete surfaces normally exposed to the atmosphere shall be protected against too rapid drying by curing for a minimum period of seven (7) days.

Concrete being cured shall be wet down as often as is necessary to keep it continually wet. Vertical surfaces shall be protected from too rapid drying by being covered with burlap or other suitable blanket material kept continuously wet for a period of seven (7) days.

3.02 BUILDING FLOORS

- A. Membrane Curing

Membrane curing shall be accomplished by coating the entire exposed surface of the concrete with the liquid compound at the rate recommended by the manufacturer.

**END OF SECTION**



## **DIVISION 9 - FINISHES**





**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

**PART 1 - GENERAL**

**1.01    DESCRIPTION OF WORK**

- A. This Section of the Specifications outlines the requirements for painting as well as the paints to be used for the Project. Contractor shall be responsible for the preparation of surfaces, application protection and drying of paint coatings, and supplying all tools, tackle, scaffolding, labor and materials necessary to complete the painting work.
- B. The following categories of work are not included as part of field-applied finish work, or are included in other sections of these Specifications.

Pre-Finished Items

Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items. However, paint electrical panels, exposed condensing units, switchgear, conduit, meter bases, other exposed mechanical and electrical items as directed.

Metal Surfaces

Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, unless otherwise indicated.

C. Related Sections

- 1. Division 1 - General Requirements
- 2. Section 01300 - Submittals
- 3. Section 05500 - Metal Fabrication (Touch up primer and field finish exposed steel)
- 4. Section 06200 - Finish Carpentry (Field Finishing)
- 5. Section 08100 - Steel Doors and Frames (Touch up primer and field finishing)
- 6. Section 08200 - Wood Doors (Field Finishing)
- 7. Division 11 - Equipment (Touch up primer and field finishing)

**1.02    DEFINITIONS**

- A. Definitions of Painting Terms: ASTM D16, unless otherwise specified.

**1.03    REFERENCES**

- A. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- B. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products
- C. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method
- D. International Concrete Repair Institute (ICRI) Guideline No. 03732 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays
- E. SSPC-SP 1 - Solvent Cleaning
- F. SSPC-SP 2 - Hand Tool Cleaning

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

- G. SSPC-SP 3 - Power Tool Cleaning
- H. SSPC-SP 5/NACE 1 - White Metal Blast Cleaning
- I. SSPC-SP 6/NACE 3 - Commercial Blast Cleaning
- J. SSPC-SP 10/NACE 2 - Near-White Metal Blast Cleaning
- K. SSPC-SP 13/NACE 6 - Surface Preparation of Concrete

**1.04 QUALIFICATIONS**

**A. Manufacturer**

Company specializing in manufacturing quality paint and finish products as specified in this Section with minimum of five (5) years documented experience.

**B. Applicator**

Company specializing in commercial/industrial (as applicable) painting and finishing products as specified in this Section with minimum of five (5) years documented experience.

**1.05 QUALITY ASSURANCE**

- A. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- B. The Contractor shall provide a supervisor at the work site during cleaning and application operation. The supervisor shall have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.
- C. The contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.
- D. Contractor shall verify that the prime coats on existing surfaces to be coated are compatible with the finish coats to be applied. Should primer and finish coats not be compatible, provide barrier coats over non-compatible primers or remove primer and reprime as required.

**1.06 SUBMITTALS**

- A. Comply with Section 01300 - Submittals
- B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.
- C. Color Samples: Submit manufacturer's color samples showing full range of standard colors.
- D. Manufacturer's Quality Assurance: Submit manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

- E. Applicator's Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
1. Project name and location
  2. Name of owner
  3. Name of contractor
  4. Name of engineer
  5. Name of coating manufacturer
  6. Approximate area of coatings applied
  7. Date of completion

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
1. Coating and material name
  2. Manufacturer
  3. Color name and number
  4. Batch or lot number
  5. Date of manufacture
  6. Mixing and thinning instructions
- B. Storage
1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
  2. Keep containers sealed until ready for use.
  3. Do not use materials beyond manufacturer's shelf life limits.
- C. Handling: Protect materials during handling and application to prevent damage or contamination

**1.08 ENVIRONMENTAL REQUIREMENTS**

- A. Weather:
1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
  2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
  3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
  4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
  5. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.
- B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D 102.
- C. Dust and Contaminants:
1. Schedule coating work to avoid excessive dust and airborne contaminants.
  2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

**PART 2 - PRODUCTS**

2.01 MANUFACTURERS

- A. TNE MEC or approved equal paint shall be used. Contractors desiring to use coatings other than those specified, shall submit substitution for approval to Engineer in writing a minimum of ten (10) days prior to bid date.

2.02 MATERIALS

A. Coatings

- 1. Coatings shall be ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency capable of being readily and uniformly dispersed to a homogeneous coating. Coatings shall demonstrate good flow and brushing properties and be capable of drying or curing free of streaks or sags.

- 2. All coatings are to be lead and chromate free.

B. Accessory Materials

Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified shall be of commercial or industrial quality, as applicable.

- C. All coatings must conform to all state and local regulations, including VOC/VOS rules at the time of application.

D. Mildewcide

Provide a mildewcide additive in all coats of interior paint including the primer. Provide 3 oz. per gallon and mix as per manufacturer's recommendations.

2.03 FINISHES

A. Cast Iron and Ductile Iron Piping

Surface Preparation

Clean all surfaces in accordance with SSPC-SP1. Abrasive Blast all surfaces to be coated in to remove all existing coatings, oxides, rust and other insoluble surface contaminants and to achieve a minimum 1.5 mil anchor profile. Do not over blast or damage the ductile iron pipe.

Exterior Coating System

- 1<sup>st</sup> Coat: Tnemec Series 66 HB Epoxoline at 3.0-5.0 dry mils
- 2<sup>nd</sup> Coat: Tnemec Series 66 HB Epoxoline at 4.0-6.0 dry mils
- 3<sup>rd</sup> Coat: Tnemec Series 1074U Endura-Shield 2.5-3.0 dry mils

Interior Coating System

- 1<sup>st</sup> Coat: Tnemec Series 66 HB Epoxoline at 3.0-5.0 dry mils
- 2<sup>nd</sup> Coat: Tnemec Series 66 HB Epoxoline at 4.0-6.0 dry mils
- 3<sup>rd</sup> Coat: Tnemec Series 66 HB Epoxoline at 4.0-6.0 dry mils

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

Coating System for Piping Subject to Direct or Indirect Contact With Wastewater

1<sup>st</sup> Coat: Tnemec Series 104HS Epoxy at 4.0-6.0 dry mils

2<sup>nd</sup> Coat: Tnemec Series 104HS Epoxy at 6.0-8.0 dry mils

B. Steel - Structural, Tanks, Equipment, Steel Doors and Frames, Miscellaneous Metals

Surface Preparation

Clean all surfaces in accordance with SSPC-SP-6

Commercial Blast Cleaning

Exterior Coating System

1<sup>st</sup> Coat: Tnemec Series 66HB Epoxyline at 4.0-6.0 dry mils

2<sup>nd</sup> Coat: Tnemec Series 70-71 Aliphatic, Polyester, Polyurethane Enamel at 1.5-2.5 dry mils

C. O.E.M. (Original Equipment Manufacturers) Painted Steel

Surface Preparation

Clean all surfaces in accordance with SSPC-SP-3

Power Tool Clean

Exterior Coating System

1<sup>st</sup> Coat: Tnemec Series 37-77 Chemprime at 2.5-3.0 dry mils

2<sup>nd</sup> Coat: Tnemec Series 2H High solids gloss Alkyd at 2.0-3.0 dry mils

3<sup>rd</sup> Coat: Tnemec Series 2H High solids gloss Alkyd at 2.0-3.0 dry mils

D. Interior and Exterior Wood

Surface Preparation

Sand rough areas smooth. Seal knots and pitch pockets

Coating System

1<sup>st</sup> Coat: Tnemec Series 10-99W (White) 2.0-3.0 dry mils

2<sup>nd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

3<sup>rd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

E. Hardie-Board

Surface Preparation

Clean and Dry

Coating System

1<sup>st</sup> Coat: Tnemec Series 151 Elasto-Grip 1.0-1.5 dry mils

2<sup>nd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

3<sup>rd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

F. Interior CMU

Surface Preparation

Allow new mortar to cure a minimum of 14 days. Level protrusions and mortar spatter.

Coating System

1<sup>st</sup> Coat: Tnemec Series 130 Envirofill 60-80 Sq. Ft/Gal

2<sup>nd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

3<sup>rd</sup> Coat: Tnemec Series 1029 Enduratone 2.0-3.0 dry mils

G. Exterior CMU

Surface Preparation

Allow new mortar to cure a minimum of 14 days. Level protrusions and mortar spatter.

Coating System

1<sup>st</sup> Coat: Tnemec Series 130 Envirofill 60-80 Sq. Ft/Gal

2<sup>nd</sup> Coat: Tnemec Series 156 Enviro-Crete 6.0-8.0 dry mils

3<sup>rd</sup> Coat: Tnemec Series 156 Enviro-Crete 6.0-8.0 dry mils

H. Gypboard

Surface Preparation

Clean, dry and free of oil, grease and other contaminants. Sand joint compound smooth and feather edge.

**PART 3 - EXECUTION**

3.01 EXAMINATION

- A. Thoroughly examine surface scheduled to be painted prior to commencing work. Report in writing to the Owner's representative any condition that may affect proper application and overall performance of coating system. Do not proceed with work until such conditions have been corrected. Commencing with work indicates acceptance of existing conditions and responsibility for performance of applied coating.

3.02 MATERIALS PREPARATION

A. General

1. Mix and prepare paint materials in strict accordance with the manufacturer's recommendations as approved by the Engineer.
2. Add the mildewcide additive at all interior paint and primers.

3.03 SURFACE PREPARATION

A. General

1. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

2. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finished-painted. Following completion of painting of each space or area, reinstall removed items.
3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

**B. Cementitious Materials**

1. Prepare cementitious surfaces of concrete, concrete block, cement plaster and cement-asbestos board to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
2. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
3. Clean concrete surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush with clean water to neutralize acid, and allow to dry before painting.

**C. Wood**

1. Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
2. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling.
3. When transparent finish is required, use spar varnish for backpriming.
4. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish and equivalent sealer immediately upon delivery to job.

**D. Metals**

1. Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
2. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.

**E. Galvanized Surfaces**

1. Clean free of oil and surface contaminants with non-petroleum base solvent.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

**3.04 APPLICATION**

**A. General**

1. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
2. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
5. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.
6. Finish doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
7. Finish all glass frames and stops prior to glazing.
8. Sand lightly between each succeeding enamel or varnish coat.
9. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up-painted, unless otherwise indicated.

**B. Scheduling Painting**

1. Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coatings 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, application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

**C. Minimum Coating Thickness**

1. Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

**D. Mechanical and Electrical Work**

1. Painting of mechanical and electrical work is limited to those items exposed in occupied spaces and at exterior.



**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09900 - PAINTING**

E. Prime Coats

1. Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.
2. Recoat primed and sealed surfaces 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 due to insufficient sealing.

F. Pigmented (Opaque) Finishes

1. Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

G. Transparent (Clear) Finishes

1. Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.
2. Provide satin finish for final coats, unless otherwise indicated.

H. Completed Work

1. Match approved samples for color, texture and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

3.05 **CLEAN-UP AND PROTECTION**

A. Clean-up

1. During progress of work, remove from site discarded paint materials, rubbish, can, and rags at end of each work day.
2. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection

1. Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Engineer.

***END OF SECTION***



**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09970 - AROMATIC POLYUREA COATING ON METAL SURFACES**

**PART 1 - GENERAL**

**1.01 DESCRIPTION OF WORK**

- A. This specification details the surface preparation and product application of an ANSI/NSF 61 approved aromatic polyurea modified specifically to meet requirements for use in coating systems utilized for storage and transmission of potable drinking water. Contractor shall be responsible for the repair and preparation of surfaces, application protection, curing and supplying all tools, tackle, scaffolding, labor and materials necessary to complete the coating work. The manufacturer's application instructions for each product used are considered part of these specifications and shall be followed at all times.

**1.02 QUALIFICATIONS**

A. Manufacturer

Company specializing in manufacturing quality aromatic polyurea coating products as specified in this Section with minimum of five (5) years documented experience.

B. Applicator

Company specializing in commercial/industrial (as applicable) aromatic polyurea coating products as specified in this Section with minimum of five (5) years documented experience.

**1.05 QUALITY ASSURANCE**

- A. The applicator shall be trained and approved by the manufacturer to apply the system. Manufacturer's written verification of applicator approval is required. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- B. The Contractor shall provide a supervisor at the work site during cleaning and application operation. The supervisor shall have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.
- C. The contractor's coating equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.
- D. Contractor shall verify that the existing surfaces to be coated are compatible with the aromatic coating to be applied.

**1.06 SUBMITTALS**

- A. Comply with Section 01300 - Submittals
- B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.
- C. Submit material safety data sheets.

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09970 - AROMATIC POLYUREA COATING ON METAL SURFACES**

- D. Color Samples: Submit manufacturer's color samples showing full range of standard colors.
- E. Manufacturer's Quality Assurance: Submit manufacturer's certification that coating complies with specified requirements and are suitable for intended application.
- F. Applicator's Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
  - 1. Project name and location
  - 2. Name of owner
  - 3. Name of contractor
  - 4. Name of engineer
  - 5. Name of aromatic polyurea coating manufacturer
  - 6. Approximate area of aromatic polyurea coating applied
  - 7. Date of completion

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
  - 1. Coating and material name
  - 2. Manufacturer
  - 3. Color name and number
  - 4. Batch or lot number
  - 5. Date of manufacture
  - 6. Mixing instructions
- B. Storage
  - 1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
  - 2. Keep containers sealed until ready for use.
  - 3. Do not use materials beyond manufacturer's shelf life limits.
- C. Handling: Protect materials during handling and application to prevent damage or contamination

**1.08 ENVIRONMENTAL REQUIREMENTS**

- A. Weather:
  - 1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
  - 2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
  - 3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
  - 4. Precipitation: Do not prepare surfaces or apply coating in rain, snow, fog, or mist.
  - 5. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.
- B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D 102.
- C. Dust and Contaminants:

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09970 - AROMATIC POLYUREA COATING ON METAL SURFACES**

1. Schedule coating work to avoid excessive dust and airborne contaminants.
2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- A. NUKOTE ST-pw by NUKOTE COATING SYSTEMS INTERNATIONAL or approved equal coating shall be used. Contractors desiring to use coatings other than those specified, shall submit substitution for approval to Engineer in writing a minimum of ten (10) days prior to bid date.

**2.02 MATERIALS**

A. Mixing instructions

1. Nukote ST-pw shall not be diluted under any circumstances. Thoroughly mix Part B resin material with air driven power equipment until a homogenous mixture and color is obtained using dedicated spray equipment.

B. Application thickness

1. The coating product shall be applied at 80 mil average thickness on all interior surfaces, providing no location has less than +/- 5% of thickness. Coverage rates are subject to substrate profile. An electronic thickness measuring meter shall be used to verify thickness during application process.

C. Physical Property Requirements

1. The physical properties of the coating must meet those contained in Table 1 below:

**TABLE 1**  
**PHYSICAL PROPERTY REQUIREMENTS**  
**AROMATIC POLYUREA COATING**

Solids by volume (ASTM D2697)	100% solids with zero VOC
Volatile organic compounds (ASTM D2369)	0 lbs/gal
Theoretical coverage	40 sq. ft./gallon @ 40 mils
Specific gravity of materials (ASTM D792)	A: 9.39; B: 8.43 lbs/gal
Viscosity at 158 degrees F in cps +/- 10% (ASTM D4878)	A-50 +/- 20; B-50 +/- 20
Shelf life @ 77 degrees F	12 to 18 months
Tensile strength (ASTM D412-C)	3000 to 3800 psi
Elongation (ASTM D412-C)	400 - 475%
Hardness (ASTM D2240)	45 to 55 Shore D
Flexibility (2mm mandrel ASTM D522)	Pass
Water vapour transmission rate (ASTM D522)	0.037-0.038 grains/hour-sq.ft.
Water absorption - 24 hours (ASTM D570)	Approximately 1%
Crack bridging @ -13 degrees F (ASTM C1305) 25 cycles	Pass
Tear strength (ASTM D642)	450 to 500 pli
Impact resistance (ASTM G14), No Holidays	> 200 in-lbf
Fire rating (ASTM E108)	Meets Class A for Flame spread
Flash point Pensky Martin	> 200 degrees F

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09970 - AROMATIC POLYUREA COATING ON METAL SURFACES**

Service temperature (Dry)	-40 to 250 degrees F
Abrasion resistance (ASTM D4060) weight loss	<8 mg loss Taber CS17 wheel 1 Kg/1000 rev
PROCESSING PROPERTIES (Under standard lab conditions)	
Mix ratio V/V	1:1
Gel time	6 to 20 seconds
Tack free time (DFT & Temperature dependent)	30 to 45 seconds
Post cure time	24 hours

D. Chemical Resistance

1. The aromatic polyurea coating is to be placed on the interior and exterior of the existing ground storage tank for potable water. As such, the coating must be resistant to those chemical characteristics of the chemicals and constituents contained in the treated water to be stored in the storage tank. Chemicals used in the treatment of the drinking water include chlorine, polymers and phosphates used to treat the raw water. The water may also contain hydrogen sulphide. The exterior coating must be resistant to normal atmospheric conditions.

**PART 3 - EXECUTION**

3.01 EXAMINATION

- A. Thoroughly examine surface scheduled to be coated prior to commencing work. Report in writing to the Owner's representative any condition that may affect proper application and overall performance of coating system. Do not proceed with work until such conditions have been corrected. Commencing with work indicates acceptance of existing conditions and responsibility for performance of applied coating.

3.02 MATERIALS PREPARATION

A. General

1. Mix and prepare coating materials in strict accordance with the manufacturer's recommendations as approved by the Engineer.

3.03 SURFACE PREPARATION

A. General

1. Perform preparation and cleaning procedures in accordance with coating manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be coated. Following completion of coating of each space or area, reinstall removed items.
3. Repair all defects in surface suitable to accept the coating.
4. Clean all surfaces and free from contamination prior to applying coating. Surface to be assessed and treated in accordance with ISO 8504, Abrasive blast the surface to minimum NACE-2/SSPC SP-10/Sa 2.5, as per ISO 8501-1, for a visual assessment of surface cleanliness with an anchor profile of 3 to 4 mils (75-100 microns).

**TECHNICAL SPECIFICATIONS**  
**DIVISION 09 - FINISHES**

**SECTION 09970 - AROMATIC POLYUREA COATING ON METAL SURFACES**

5. A near-white blast cleaned surface, when viewed without magnification, shall be free of all visible oil, greasedust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter, except for staining.

**3.04 APPLICATION**

**A. General**

1. Apply coating in accordance with manufacturer's directions utilizing high-pressure, heated plural component spray proportioning equipment capable of delivering materials without loss of pressure or drop in temperature for the appropriate hose length on a consistent basis.
2. For immersion applications (interior of tank), use of a suitable primer is required in accordance with manufacturer's recommendations.
3. Apply additional coats as necessary until coating is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

**B. Minimum Coating Thickness**

1. Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

**C. Completed Work**

1. Match approved samples for color, texture and coverage. Remove, refinish, or recoat work not in compliance with specified requirements.

**3.05 CLEAN-UP AND PROTECTION**

**A. Clean-up**

1. During progress of work, remove from site discarded coating materials, rubbish, can, and rags at end of each work day.
2. Dispose of excess materials and containers in accordance with state and local regulations.

**B. Protection**

1. Protect work of other trades, whether to be coated or not, against damage by coating work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Engineer.

***END OF SECTION***

