

## **BIDDING REQUIREMENTS, CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS**

## FOR

## LTD OFFICE PARKING LOT IMPROVEMENTS SRA – RFB 25-0302 POINT, TX 75472

**OCTOBER 2024** 





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**Request for Bids** 

## LTD Office Parking Lot Improvements

September 2024

Authority General Office 12777 Hwy. 87 N. Orange, TX 77632 409.746.2192 Lake Tawakoni Division 169 Rcr 1480 Point, TX 75472 903.598.2216

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# PART 1 – BIDDING REQUIREMENTS & CONTRACT DOCUMENTS



NOTICE TO BIDDERS

#### **NOTICE TO BIDDERS**

#### Sabine River Authority of Texas LTD Office Parking Lot Improvement

**General Notice** 

Sabine River Authority of Texas (Owner) is requesting Bids for the construction of the following Project:

#### LTD Office Parking Lot Improvement Project Number: SRA – RFB 25-0302

Sealed bids for the construction of the Project will only be received virtually via CIVCAST USA until Tuesday, November 12<sup>th</sup>, 2024 at 2:00 PM local time. At that time the Bids received will be **publicly** opened and read through a virtual meeting (see below for meeting information). Bidders may also attend the opening at the Lake Tawakoni SRA Division Office, 169 Rcr 1480, Point, TX 75472.

Bids must be submitted and received no later than the opening date and time specified above. Any Bid received later than the specified time will not be considered.

A non-mandatory Pre-Bid Conference between the SRA, prospective bidders, suppliers, etc. will be held on October 30<sup>th</sup>, 2024 at 2:00 PM local time at the SRA Division Office, 169 Rcr 1480, Point, TX 75472 and through a virtual meeting (see below for meeting information) to make certain that the scope of work is fully understood.

The Sabine River Authority reserves the right to adopt the most advantageous interpretation of the bids submitted in the case of ambiguity or lack of clearness in stating proposal prices, to reject any or all bids, and/or waive any formalities.

Contract documents may be obtained by downloading (1) from www.sratx.org under doing business "bid opportunities" or (2) from CIVCAST USA Website. Hard copies of plans will not be made available for purchase. Questions regarding contract documents may be sent via CIVCAST Website or emailed to purchasing@sratx.org.

#### Dates: October 23<sup>rd</sup>, 2024 and October 30<sup>th</sup>, 2024

#### Pre-Bid Meeting

Pre-Bid Meeting will be help via Microsoft Teams on Wednesday, October 30<sup>th</sup>, 2024, at 2:00 PM. Microsoft Teams link: <u>https://teams.microsoft.com/l/meetup-</u> join/19%3ameeting Yjc4MWZIYzAtNDkwOC00NmMzLWE1ZjMtYTA0YTBiZDJINmYx%40thread.v2/0?context= %7b%22Tid%22%3a%227e220d30-0b59-47e5-8a81-a4a9d9afbdc4%22%2c%22Oid%22%3a%2292cb627b-<u>1764-431e-a2c5-f3bc9612a38a%22%7d</u> Or call in (audio only): +1 984-204-1608,686068508# Meeting ID: 273 565 043 12 Passcode: iv3b7g

#### **Bid Opening**

Bid Opening Meeting will be held via Microsoft Teams on Tuesday, November 12<sup>th</sup>, 2024, at 2:00 PM. Microsoft Teams link: <u>https://teams.microsoft.com/l/meetup-</u> join/19%3ameeting ODU4NDI1ZDQtYWU3My00ODQ3LWFiOGUtMjA3MWYyZGQxOGE0%40thread.v2/0?con text=%7b%22Tid%22%3a%227e220d30-0b59-47e5-8a81a4a9d9afbdc4%22%2c%22Oid%22%3a%2292cb627b-1764-431e-a2c5-f3bc9612a38a%22%7d Or call in (audio only): +1 984-204-1608,795627665# Meeting ID: 220 797 434 305 Passcode: 2GVKPC



**INSTRUCTION to BIDDERS** 

## INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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#### ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
  - A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders (refer to the Notice to Bidders).

#### ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website (CIVCAST USA) as indicated in the Notice to Bidders. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the notice to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.06 *Electronic Documents* 
  - A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
    - 1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of

the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

#### ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
  - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
  - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
  - C. Bidder's state or other contractor license number, if applicable.
  - D. Subcontractor and Supplier qualification information.
  - E. Other required information regarding qualifications.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

#### **ARTICLE 4—PRE-BID CONFERENCE**

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the notice to bid. Representatives of Owner and Engineer will be present to discuss the Project. A list of qualified Bidders that attended the pre-bid conference and are eligible to submit a Bid for this Project, will be made available upon request.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions

at the pre-bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

# ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 Site and Other Areas
  - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

#### 5.02 *Existing Site Conditions*

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
  - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
    - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
    - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
    - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
    - d. Technical Data contained in such reports and drawings.
  - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
  - 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
  - 4. *Geotechnical Baseline Report/Geotechnical Data Report:* The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).
    - a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.
    - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on

the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

- c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
- d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.
- B. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

#### 5.03 Other Site-related Documents

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

#### 1. N/A

Owner will make copies of these other Site-related documents available to any Bidder on request.

- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
- C. The other Site-related documents are not part of the Contract Documents.
- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.
- E. No other Site-related documents are available.
- 5.04 Site Visit and Testing by Bidders
  - A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
  - B. Bidders visiting the Site are required to arrange their own transportation to the Site.
  - C. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: Kristina Malek Ph: 346.888.3887 E:Kristina.malek@kimley-horn.com. Bidder must conduct the required Site visit during normal working hours.

- D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- E. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- F. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- G. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 5.05 Owner's Safety Program
  - A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 5.06 Other Work at the Site
  - A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

#### ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Express Representations and Certifications in Bid Form, Agreement
  - A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
  - B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

#### ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. All questions shall be received no later than <u>10 days prior to the bid opening</u> date. Contact information and submittal procedures for such questions are as follows:

#### A. Questions shall be submitted via CIVCAST USA Website.

- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

#### **ARTICLE 8—BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner. Bidder must meet the following bid security requirements as set forth in Texas Water Code Chapter 49 Subchapter I. If the Bid proposal exceeds \$50,000 up to \$250,000, the Bidder must submit a bid security in the amount of at least two (2%) percent of the amount of the maximum total bid in the form of a certified or cashier's check on a responsible bank in the state. If the Bid exceeds \$250,000, the Bidder must submit a bid bond in the amount of five (5%) percent of the amount of the maximum total bid in the form of an approved Bidder's Bond underwritten by a surety authorized to conduct business in the State of Texas. The surety must also meet the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the

Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released after the Contract Award.

#### ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

#### ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer prior to the pre-bid meeting. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

#### ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective

Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work with the qualifications statement or within 5 days of Owner's request.
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

#### ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
  - A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
  - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must 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 must be shown.

- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person 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.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

#### ARTICLE 13—BASIS OF BID

#### 13.01 Unit Price

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. In case of discrepancy between the written amounts and figures, the written amounts shall govern.

#### 13.02 Allowances

A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

#### **ARTICLE 14—SUBMITTAL OF BID**

- 14.01 The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or notice to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must 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 must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the notice to bidders.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

#### ARTICLE 15-MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

#### ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the advertisement or notice to bid and, unless obviously non-responsive, read aloud <u>publicly</u>. A summary of the amounts of the base Bids

and major alternates, if any, will be made available to Bidders after the opening of Bids. Bidders and other interested parties may be present at the public bid opening.

#### ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for a period of 60 days as shown in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

#### ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids* 
  - A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award. The Owner may consider the following in determining the best value:
  - In the comparison of Bids, The amount bid;
  - Reputation of the bidder and the bidder's goods or services;
  - Quality of the bidder's goods or services;
  - Extent to which the goods or services meet the needs of SRA;
  - Bidder's past relationship with SRA;
  - Total long-term cost to SRA to acquire the bidder's goods or services;
  - Bidder's past experience in performing similar work;
  - Bidder's financial record indicating the stability of the bidder;
  - Bidder's history of successfully completing projects; and
  - Any relevant criteria specifically listed in the request for bids or proposals.
  - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award

may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

- C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

#### ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions and the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

#### ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

#### ARTICLE 21—SALES AND USE TAXES

21.01 Owner is exempt by law from **State of Texas** sales and Use Tax Laws, and Federal Excise Tax on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

#### ARTICLE 22—CONFIDETIALITY OF DOCUMENTS

The SRA is subject to the Texas Public Information Act (PIA). Any information submitted to the SRA by the Bidder shall be considered non-confidential and available to the public, except as follows:

In the event a Bidder considers a specific portion of their Bid to be confidential and subject to an exception to disclosure under the PIA, such portion must be clearly identified and marked "CONFIDENTIAL". Do not mark an entire proposal confidential, as this is not in conformance with the PIA and is not acceptable. Only the specific portion or portions of the Bid that the Bidder considers to be confidential pursuant to

the PIA should be marked. IF AN ENTIRE BID IS MARKED CONFIDENTIAL, THE SRA WILL NOT TREAT ANY PORTION OF THE BID AS CONFIDENTIAL AND THE BID MAY BE REJECTED AS NON-CONFORMING. The SRA will honor notations of confidentiality in accordance with this paragraph and decline to release such information initially; however, final determination of whether a particular portion of a Bid may in fact be withheld pursuant to the PIA will be made by the Texas Attorney General or a court of competent jurisdiction.

In the event a public information request is received for a portion of a Bid that has been marked confidential, the SRA will ask the affected Bidder if the information may be released. If the release is agreed to, the SRA shall release the information.

If the release is denied, the matter shall be referred to the Texas Attorney General's Office in accordance with the process set forth in the PIA. The Bidder shall be fully and solely responsible for submitting arguments and evidence within the statutory timeframes to the Texas Attorney General's Office regarding its claim of confidentiality. The SRA will NOT submit arguments on behalf of the Bidder.

The Texas Attorney General's Office shall rule on the matter. In the event that it is determined by opinion of the Texas Attorney General or court of competent jurisdiction that such information may not be withheld, then such information will be made available to the requestor. If it is determined that the information may be withheld, SRA will withhold the information from the requestor.

Pricing information contained in bids or contracts is not considered confidential under the PIA and will be disclosed without making a request to the Texas Attorney General.

#### ARTICLE 23—CONFLICT OF INTEREST

Pursuant to Chapter 176 of the Local Government Code, any person or agent of a person who contracts or seeks to contract for the sale or purchase of property, goods, or services with a local government entity (i.e. Sabine River Authority) must disclose in the Conflicts of Interest Questionnaire Form (CIQ) the person's affiliation or business relationship that might cause a conflict of interest with the local government entity. By law, the CIQ must be filed with the SRA Records Management Officer no later than seven (7) days after the date the person begins contract discussions or negotiations with the SRA, or submits an application or response to a Request for Bids, correspondence, or another writing related to a potential agreement with SRA. Updated Questionnaires must be filed in conformance with Chapter 176.

A copy of the CIQ is included. If you have any questions about compliance, please consult your own legal counsel. Compliance is the individual responsibility of each person or agent of a person who is subject to the filing requirement. An offense under Chapter 176 carries a penalty up to a Class A misdemeanor.

#### ARTICLE 24—EQUAL OPPURTINITY

Sabine River Authority provides for equal opportunity for all qualified parties including Historically Underutilized Business (HUBs). If your organization or any associated sub-contractor on the project area a certified HUB with the State of Texas, please submit documentation of the certified organization, including description of the work, percentage of the contract expected to be completed by the HB, and the certification number of the HUB.



**BID PROPOSAL** 

## ARTICLE 1-BID FORM FOR CONSTRUCTION CONTRACT

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

#### ARTICLE 1— OWNER AND BIDDER

This Bid is submitted to: Sabine River Authority of Texas: Lake Tawakoni Division

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents. All prices shall be stated in both words and figures; however, do not extend the unit price. If the unit price is extended, the extension shall be ignored in tabulating the bids(\*). In case of discrepancy between the written amounts and the figures, the written amounts shall govern.

#### ARTICLE 2— ATTACHMENTS TO THIS BID

The following documents are submitted with and made a condition of this Bid:

Required Bid security; Vendor Certification to State Law; Conflict of Interest; Required Bidder Qualification Statement with supporting data; Form W-9; Bonding Company Information Bid Opening Sheet Non-Collusion Affidavit(s) Additional Items as stipulated in the request

#### ARTICLE 3— BASIS OF BID—LUMP SUM BID AND UNIT PRICES

#### 3.1 Lump Sum Bids

- 1. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s), together with any Unit Prices indicated in Paragraph 3.02:
  - 1. Lump Sum Price (Base Bid and Alternates)

Lump Sum Bid Price for Base Bid	\$
Paving Alternate 1	\$
Paving Alternate 2	\$

#### 3.2 Unit Price Bids

- 1. Bidder acknowledges that:
  - 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
  - 2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.
- 2. Bidder will perform the following Work at the indicated unit prices:

#### LTD Office Parking Lot Improvements

#### NOTES:

#### **BID FORM**

1) All bidders shall provide quantities and unit prices for all items included in the Work. In the event that a greater or lesser amount of Work is requested by owner, the unit prices shall be utilized to determine the cost for the Work. The quantities provided shall be those required to complete the work as described in the drawings.

2) In all cases, once the bid is submitted, contractor shall be responsible for installing the quantity of actual work items shown on the drawings, regardless of quantity discrepancies. Unit prices shall be for the cost of work and materials in place complete. They shall include all cost of required permits, materials, labor, equipment, delivery, taxes, overhead, profit, maintenance, and guarantee.

3) Contractor shall be responsible for all work related to National Pollution Discharge Elimination System (NPDES) regulations. Notice of Intent, Notice of Termination, all required reporting, as well as require field work to maintain the P.P.P. shall be included in this Base Bid.
 4) All items not specifically included in the bid form shall be performed subsidiary to other bid items.

Item	Spec	Est.		Name of Pay Item with	Unit Bid	Amount
No.	Item	Quantity	Unit	Price in Words	Price	Bid
Base	Bid -		DE	MOLITION		
1	NCTCOG	320	S.Y.	Remove Existing Concrete Pavement (Full Depth)		
	203.1			Complete in Place		
				dollars and cents per unit	\$	\$
2	NCTCOG	6,028	S.Y.	Remove Existing Asphalt Pavement and Base Material (Full Depth)		
	203.1			Complete in Place		
				dollars and cents per unit	\$	\$
3	NCTCOG	230	S.Y.	Remove Existing Gravel Pavement (Full Depth)		
	203.1			Complete in Place		
				dollars and cents per unit	\$	\$
4	NCTCOG	532	EA.	Remove Existing Flexbase (Full Depth)		
	203.1			Complete in Place		
				dollars and cents per unit	\$	\$
5	NCTCOG	264	L.F.	Full Depth Sawcut		
	402.3			Complete in Place		
				dollars and cents per unit	\$	\$
6	NCTCOG	1,514	L.F.	Remove Existing Concrete Curb and Gutter		
	203.1			Complete in Place		
				dollars and cents per unit	\$	\$
Subt	otal -		DE	MOLITION		\$

Base	Bid -		SU	3GRADE PREPARATION	
7	NCTCOG	6,732	S.Y.	Install 6" Lime Stabilized Subgrade	
	301.2			Complete in Place	
				dollars and cents per unit	\$ \$
8	TXDOT	118	TON	Provide and Install Lime	
	301.2			Complete in Place	
				dollars and cents per unit	\$ \$
Subtotal - SUBGRADE PREPARATION				\$	

Base	Bid -				
9	NCTCOG	396	C.Y.	Unclassified Excavation and Place/Compact Fill	
	203.4			Complete in Place	
				dollars and cents per unit	\$ \$
10	NCTCOG	364	C.Y.	Unclassified Excavation and Haul Off	
	203.4			Complete in Place	
				dollars and cents per unit	\$ \$
Subtotal - EARTHWORK				THWORK	\$

Base	Bid -		PA	VING	
11	NCTCOG	850	S.Y.	Place Reinforced Concrete Street Pavement (7")	
	303			Complete in Place	
				dollars and cents per unit	\$ \$
12	NCTCOG	5,884	S.Y.	Place Reinforced Concrete Street Pavement (6")	
	303			Complete in Place	
				dollars and cents per unit	\$ \$
13	NCTCOG	4	S.Y.	Place Reinforced Concrete Sidewalk Pavement (4")	
	303			Complete in Place	
				dollars and cents per unit	\$ \$

14	NCTCOG	1,230	L.F.	Install 6" Concrete Curb	
	303			Complete in Place	
				dollars and cents per unit	\$ \$
15	TXDOT	441	L.F.	Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)	
	666			Complete in Place	
				dollars and cents per unit	\$ \$
16	TXDOT	2	EA.	Provide and Install ADA Striping (Hot Applied Thermoplastic)	
	666			Complete in Place	
				dollars and cents per unit	\$ \$
17	NCTCOG	333	L.F.	Connect to Existing Concrete Pavement	
	702			Complete in Place	
				dollars and cents per unit	\$ \$
Subto	otal -		PA	/ING	\$

Base	Bid -		ER	OSION CONTROL	
18	NCTCOG	1	EA.	Provide and Install Stabilized Construction Entrance	
	202.5			Complete in Place	
				dollars and cents per unit	\$ \$
19	NCTCOG	355	L.F.	Provide, Install, and Remove Silt Fence	
	202.5			Complete in Place	
				dollars and cents per unit	\$ \$
Subt	otal -		ERO	DSION CONTROL	\$

Base	Bid -		LAN	IDSCAPE		
20	NCTCOG	1,675	S.Y.	Install 100% Coverage of Disturbed Area by Bermuda Sod		
	204.5			Complete in Place		
				dollars and cents per un	t \$	\$
Subt	otal -		LAN	IDSCAPE		\$

Base	Bid -		MI	SCELLANEOUS	
21	SC-19	1	L.S.	Provide and Install Barricading and Traffic Control	
				Complete in Place	
				dollars and cents per unit	\$ \$
22	SC-19	1	L.S.	Provide Project Preconstruction Video	
				Complete in Place	
				dollars and cents per unit	\$ \$
23	SC-19	1	L.S.	Provide Construction Staking	
				Complete in Place	
				dollars and cents per unit	\$ \$
24	SC-19	1	L.S.	Provide SWPP	
				Complete in Place	
				dollars and cents per unit	\$ \$
25	SC-19	1	EA.	Provide and Install Project Sign	
				Complete in Place	
				dollars and cents per unit	\$ \$
26	SC-19	1	L.S.	Mobilization, Bonds, and Insurance	
				Complete in Place	
				dollars and cents per unit	\$ \$
Subt	otal -		MIS	CELLANEOUS	\$

\_\_\_\_\_

DOLLARS

CENTS

CALENDAR DAYS TO SUBSTANTIAL COMPLETION

CALENDAR DAYS TO FINAL COMPLETION

Alt Bi	d -		PA	VING ALTERNATE NO. 1		
27	NCTCOG	108	L.F.	Full Depth Sawcut		
	402.3			Complete in Place		
				dollars and cents per uni	t \$	\$
28	NCTCOG	103	L.F.	Remove Existing Concrete Curb and Gutter		
	203.1			Complete in Place		
				dollars and cents per un	t \$	\$
29	NCTCOG	2	EA.	Remove Existing Tree		
	203.1			Complete in Place	1.	
				dollars and cents per un	t \$	\$
30	NCTCOG	220	S.Y.	Install 6" Lime Stabilized Subgrade	_	
	301.2			Complete in Place		
				dollars and cents per uni	t \$	\$
31	NCTCOG	850	S.Y.	Place Reinforced Concrete Street Pavement (7")	_	
	303			Complete in Place		•
				dollars and cents per un	t \$	\$
32	NCTCOG	5,884	S.Y.	Place Reinforced Concrete Street Pavement (6")	-	
	303			Complete in Place		¢
	107000		<u> </u>	dollars and cents per un	t \$	<b>Þ</b>
33	NCTCOG	4	S.Y.	Place Reinforced Concrete Sidewalk Pavement (4")	-	
	303			Complete in Place		¢
24	NOTOOO	000	0.14	dollars and cents per uni	ι φ	Φ
34	NCTCOG	220	S.Y.	Place Reinforced Concrete Street Pavement (5")	-	
	303			Complete in Place	e e	¢
25	NCTCOC	4 070	1 5	Dravida and Install Cli Conserts Curk	ιψ	Ψ
- 35	NUTCOG	1,372	L.F.	Complete in Place	-	
	303			dollars and cents per uni	- C	\$
36	ΤΥΡΟΤ	621	IF	Provide and Install /" Solid White Strine (Hot Applied Thermoplastic)	Ψ	Ψ
50	666	021	L.I .	Complete in Place	-	
	000			dollars and cents per uni	1.5	\$
37	ΤΧΡΟΤ	2	FΔ	Provide and Install ADA Strining (Hot Applied Thermoplastic)	Ψ	Ŷ
•.	666	~	/	Complete in Place		
	000			dollars and cents per uni	t \$	\$
38	NCTCOG	436	I F	Connect to Existing Concrete Pavement	· •	Ŧ
	702			Complete in Place	-	
				dollars and cents per uni	t \$	\$
39	SHEET	12	EA.	Install Canopy Column Foundation		
	C-202			Complete in Place	-	
				dollars and cents per uni	t \$	\$
40	NCTCOG	136	L.F.	Provide, Install, and Remove Silt Fence		
	202.5			Complete in Place	1	
				dollars and cents per uni	t \$	\$
Subto	otal -		PA	/ING ALTERNATE NO. 1		\$

TOTAL PROJECT PAVING ALTERNATE NO. 1 BASE BID EXCLUDING PAVING (ITEMS 11-17) - LTD OFFICE PARKING LOT IMPROVEMENTS, for All Items (words and figures) DOLLARS

\$\_\_\_\_\_ TOTAL

CENTS

Alt B	id -		PA	VING ALTERNATE NO. 2		
41	NCTCOG	4,592	S.Y.	Install 6" Lime Stabilized Subgrade		
	301.2			Complete in Place		
				dollars and	cents per unit	\$ \$
42	NCTCOG	2,141	S.Y.	Install 8" Lime Stabilized Subgrade		
	301.2			Complete in Place		
				dollars and	cents per unit	\$ \$
43	TXDOT	123	TON	Provide and Install Lime		
	301.2			Complete in Place		
				dollars and	cents per unit	\$ \$
44	NCTCOG	416	C.Y.	Unclassified Excavation and Haul Off		
	203.4			Complete in Place		
				dollars and	cents per unit	\$ \$
45	NCTCOG	850	S.Y.	Place Reinforced Concrete Street Pavement (7")		
	302			Complete in Place		
				dollars and	cents per unit	\$ \$

46	NCTCOG	3,742	S.Y.	Place Reinforced Concrete Street Pavement (6")		
	303			Complete in Place		
				dollars and cents per uni	t \$	\$
47	NCTCOG	4	S.Y.	Place Reinforced Concrete Sidewalk Pavement (4")		
	303			Complete in Place		
				dollars and cents per uni	: <b>\$</b>	\$
48	NCTCOG	2,141	S.Y.	Install 10" Crushed Stone Base Subgrade		
	302			Complete in Place		
				dollars and cents per uni	\$	\$
49	NCTCOG	2,141	S.Y.	Provide and Install 3" Asphalt Street Pavement		
	302			Complete in Place		
				dollars and cents per uni	\$	\$
50	NCTCOG	1,229	L.F.	Install 6" Concrete Curb		
	303			Complete in Place		
				dollars and cents per uni	t \$	\$
51	TXDOT	441	L.F.	Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)		
	666			Complete in Place		
				dollars and cents per uni	t \$	\$
52	TXDOT	2	EA.	Provide and Install ADA Striping (Hot Applied Thermoplastic)		
	666			Complete in Place		
				dollars and cents per uni	t <b>\$</b>	\$
53	NCTCOG	61	L.F.	Connect to Existing Concrete Pavement		
	702			Complete in Place		
				dollars and cents per uni	t <b>\$</b>	\$
Subto	otal -		PA\	/ING ALTERNATE NO. 2		\$

# TOTAL PROJECT PAVING ALTERNATE NO. 2 BASE BID EXCLUDING SUBGRADE PREPARATION (ITEMS 7-8) AND PAVING (ITEMS 11-17) - LTD OFFICE PARKING LOT IMPROVEMENTS, for All Items (words and figures)

\$\_\_\_\_\_ TOTAL

DOLLARS

CENTS

Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

#### ARTICLE 1— TIME OF COMPLETION

- Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- Bidder agrees that the Work will be substantially complete as indicated in the Agreement, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions.
- Bidder agrees that the Work will be substantially complete within the time stipulated in the Agreement and as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions.

Bidder accepts the provisions of the Agreement as to liquidated damages.

# ARTICLE 2— BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

#### Bid Acceptance Period

This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

#### Instructions to Bidders

Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

#### Receipt of Addenda

Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date	Received

#### ARTICLE 3— BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

#### Bidder's Representations

In submitting this Bid, Bidder represents the following:

3. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

4. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

5. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

6. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

7. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

8. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

9. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

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

11. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

12. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

13. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### Bidder's Certifications

1. The Bidder certifies the following:

14. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

15. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

16. Bidder has not solicited or induced any individual or entity to refrain from bidding.

17. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

	(typed or printed name of organization)
By:	
_	(individual's signature)
Name:	(tunad or printed)
Title:	(typed of printed)
	(typed or printed)
Date:	
	(typed or printed)
lf Bidder is a	corporation, a partnership, or a joint venture, attach evidence of authority to sign.
Attest:	
_	(individual's signature)
Name:	
Title	(typed or printed)
nue	(typed or printed)
Date:	
_	(typed or printed)
Address for	giving notices:
_	
_	
Bidder's Co	ntact:
Name:	
Title	(typed or printed)
nue	(typed or printed)
Phone:	
Email:	
Address:	
_	
_	
Bidder's Co	ntractor License No.: (if applicable)

### **BID BOND (PENAL SUM FORM)**

Bidder	Surety
Name:	Name:
Address (principal place of business):	Address (principal place of business):
•	
Owner	Bid
Name: Sabine River Authority of Texa	As Project (name and location):
Address (principal place of business):	LTD Office Parking Lot Improvement
12777 Hwy 87 N	
Orange, Texas 77632	
	Bid Due Date: <b>Tuesday, November 12<sup>th</sup>, 2024</b>
Bond	
Penal Sum:	
Penal Sum: Date of Bond:	
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal	ly bound hereby, subject to the terms set forth in this Bid Bond,
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative.
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal)
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder) By:	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By:
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly of Bidder (Full formal name of Bidder) By: (Signature)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney)
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed)
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly of Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title:
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title:	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title:
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: Attest:	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety <a href="https://www.comporate-seal">(Full formal name of Surety) (corporate-seal</a> ) <a href="https://www.comporate-seal">By:</a> <a href="https://www.comporate-seal">(Signature) (Attach Power of Attorney)</a> <a href="https://www.comporate-seal">Name:</a> <a href="https://www.comporate-seal">(Signature) (Attach Power of Attorney)</a> <a href="https://www.comporate-seal">https://www.comporate-seal</a> ) <a href="https://www.comporate-seal">Surety</a> <a href="https://www.comporate-seal">(Signature) (Attach Power of Attorney)</a> <a href="https://www.comporate-seal">Name:</a> <a href="https://www.comporate-seal">(Printed or typed)</a> <a href="https://www.comporate-seal">Title:</a> <a href="https://www.comporate-seal">(Signature) (Attach Power of Attorney)</a> <a href="https://www.comporate-seal">Name:</a> <a href="https://www.comporate-seal">(Printed or typed)</a> Title: <a href="https://www.comporate-seal">Attest:</a>
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly of Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: Attest: (Signature)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature)
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly e Bidder (Full formal name of Bidder) By: (Signature) Name: (Printed or typed) Title: Attest: (Signature) Name: (Signature)	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Attest: (Signature) Name: (Signature) Name:
Penal Sum: Date of Bond: Surety and Bidder, intending to be legal do each cause this Bid Bond to be duly of Bidder <i>(Full formal name of Bidder)</i> By: <i>(Full formal name of Bidder)</i> By: <i>(Signature)</i> Name: <i>(Printed or typed)</i> Title: <i>(Signature)</i> Name: <i>(Printed or typed)</i>	ly bound hereby, subject to the terms set forth in this Bid Bond, executed by an authorized officer, agent, or representative. Surety (Full formal name of Surety) (corporate seal) By: (Signature) (Attach Power of Attorney) Name: (Printed or typed) Title: Name: (Signature) Name: (Printed or typed) Titlo:
- Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
- 2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
- 3. This obligation will be null and void if:
  - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by Owner, or
  - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
- 4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
- 5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
- 6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
- 7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
- 8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
- 9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
- 10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
- 11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

## **BID OPENING**

In the space provided below, enter your total Base Bid amount for this project. Only this figure will be read publicly at the public bid opening.

It is understood and agreed by the bidder in signing the proposal that the total bid amount entered below is not binding on either the bidder or the Owner. It is further agreed that the official total bid amount for this proposal will be determined by multiplying the unit prices for each unit price pay item by the respective estimated quantities shown in this proposal, and then totaling all of the extended amounts plus the amounts bid for all lump sum items.

Project: LTD Office Parking Lot Improvements

Point, Texas

Owner: Sabine River Authority of Texas

Orange, Texas

\$

Total Base Bid Amount

\$

Total Base Bid Amount (Paving Alternate 1)

\$

Total Base Bid Amount (Paving Alternate 2)

Name of Bidder

### ARTICLE 1—GENERAL INFORMATION

### 1.01 Provide contact information for the Business:

Legal Na	ame of Business:					
Corporate Office						
Name:				Phone number:		
Title:				Email address:		
Busines	s address of corpo	rate office:				
		-				
		-				
Local Of	fice	I				
Name:				Phone number:		
Title:				Email address:		
Busines	s address of local o	office:				
		-				
		-				

### ARTICLE 2—DIVERSE BUSINESS CERTIFICATIONS

2.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
Disadvantaged Business Enterprise		
Minority Business Enterprise		
Woman-Owned Business Enterprise		
Small Business Enterprise		
Disabled Business Enterprise		
Veteran-Owned Business Enterprise		
Service-Disabled Veteran-Owned Business		
HUBZone Business (Historically Underutilized) Business		
□ Other		
□ None		

### **ARTICLE 3—CONSTRUCTION EXPERIENCE**

3.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

3.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project: As a general contractor: As a joint venturer: Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03: Been disgualified as a bidder by any local, state, or federal agency within the last 5 years?  $\Box$  Yes  $\Box$  No Been barred from contracting by any local, state, or federal agency within the last 5 years?  $\Box$  Yes  $\Box$  No Been released from a bid in the past 5 years?  $\Box$  Yes  $\Box$  No Defaulted on a project or failed to complete any contract awarded to it?  $\Box$  Yes  $\Box$  No Refused to construct or refused to provide materials defined in the contract documents or in a change order? □ Yes □ No Been a party to any currently pending litigation or arbitration? 
Yes 
No

Provide full details in a separate attachment if the response to any of these questions is Yes.

- 3.03 List all projects currently under contract in Schedule A and provide indicated information.
- 3.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.
- 3.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

### **ARTICLE 4—REQUIRED ATTACHMENTS**

- 4.01 Provide the following information with the Statement of Qualifications:
  - A. Schedule A (Current Projects) as required by Paragraph 8.03.
  - В. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
  - Schedule C (Key Individuals) and resumes for the key individuals listed, as required by C. Paragraph 8.05.
  - D. Financial Statements shall be provided upon request.

This Statement of Qualifications is offered by:

Ducinoco	
DUSILIESS	

	(typed or printed name of organization)
Ву:	(individual's signature)
Name:	(marrieda s signatare)
Nume.	(typed or printed)
Title:	(typed or printed)
Date:	
Date.	(date signed)
(If Busines	s is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	(individual's signature)
Name:	
	(typed or printed)
Title:	
Address fo	r giving notices:
Designated	Representative:
Name:	
	(typed or printed)
Title:	(typed or printed)
Address:	
Phone:	
Email:	

### Schedule A—Current Projects

Name of Organization						
Project Owner			Project Nam	ne		
General Description of P	roject					
Project Cost			Date Projec	t		
Key Project Personnel	Project Manager	Project Super	intendent	Safe	ety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indicat	tes approval to contacting	g the names in	dividuals as a	reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	ne		
General Description of P	roject			1		
Project Cost			Date Project	t		
Key Project Personnel	Project Manager Project Superi		ntendent Safe		ety Manager	Quality Control Manager
Name						
Reference Contact Inforr	nation (listing names indicat	tes approval to contacting	g the names in	dividuals as a	reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	ne		
General Description of P	roiect		riojectivan			
Project Cost			Date Project	t		
Key Project Personnel	Project Manager	Project Super	intendent	Safe	ety Manager	Quality Control Manager
Name	, 0				, 0	
Reference Contact Inforr	nation (listing names indicat	tes approval to contacting	g the names in	dividuals as a	reference)	1
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						

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### Schedule B—Previous Experience with Similar Projects

Name of Organization						
Project Owner			Project Nam	e		
General Description of P	roject					
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	intendent	Sa	fety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	tes approval to contacting	g the names ind	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	e		
General Description of P	roject					
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	ntendent Safety M		fety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	tes approval to contacting	g the names ind	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	e		
General Description of P	roiect			•		
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	intendent	Sa	fety Manager	Quality Control Manager
Name					, 0	
Reference Contact Inform	Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						

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### Schedule B—Previous Experience with Similar Projects

Name of Organization						
Project Owner			Project Nam	e		
General Description of P	roject					
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	intendent	Sa	afety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	tes approval to contactin	g the names ind	lividuals as	s a reference)	
	Name	Title/Position	Organ	zation	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	e		
General Description of P	roject			I		
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	intendent	ntendent Safet		Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	tes approval to contactin	g the names ind	lividuals as	s a reference)	
	Name	Title/Position	Organ	zation	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	e		
General Description of P	roiect					
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Super	intendent	Sa	afety Manager	Quality Control Manager
Name	, 0				, 0	
Reference Contact Inforr	nation (listing names indica	tes approval to contactin	g the names ind	lividuals as	s a reference)	1
	Name	Title/Position	Organ	zation	Telephone	Email
Owner						
Designer						
Construction Manager						

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### Schedule C—Key Individuals

Project Manager				
Name of individual				
Years of experience as project manager				
Years of experience with this organization				
Number of similar projects as project manager				
Number of similar projects in other positions				
Current Project Assignments				
Name of assignment	Percent of time used for	Estimated project		
	this project	completion date		
Reference Contact Information (listing names indicat	es approval to contact named inc	lividuals as a reference)		
Name	Name			
Title/Position	Title/Position			
Organization	Organization			
Telephone	Telephone			
Email	Email			
Project	Project			
Candidate's role on	Candidate's role on			
project	project	project		
Project Superintendent				
Name of individual				
Years of experience as project superintendent				
Years of experience with this organization				
Number of similar projects as project superintendent	t			
Number of similar projects in other positions				
Current Project Assignments				
Name of assignment	Percent of time used for	Estimated project		
	this project	completion date		
Reference Contact Information (listing names indicat	es approval to contact named inc	lividuals as a reference)		
Name	Name			
Title/Position	Title/Position			
Organization	Organization			
Telephone	Telephone			
Email	Email			
Project	Project			
Candidate's	Candidate's			
role on project	role on project			

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment	Percent of time used for this projectEstimated project		
Reference Contact Information (listing names indicates ap	proval to contact named individuals as a reference)		
Name	Name		
Title/Position	Title/Position		
Organization	Organization		
Telephone	Telephone		
Email	Email		
Project	Project		
Candidate's role on	Candidate's role on		
project	project		
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments	· · · · · ·		
Name of assignment	Percent of time used for Estimated project		
	this project completion date		
Reference Contact Information (listing names indicates ap	proval to contact named individuals as a reference)		
Name	Name		
Email Decident	Email Desired		
Project	Project		
Candidate's	Candidate's		
role on project	role on project		

## VENDOR COMPLIANCE TO STATE LAW

Chapter 2252.002, of the Texas Government Code applies to the award of government contract to non-resident bidders. This law provides that:

"A government entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is less than the greater of the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located

"Nonresident Bidder" refers to a person who is not a resident of Texas

"Resident Bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Check the statement that is correct for Bidder.

- [] Non-resident bidders in \_\_\_\_\_\_ (give state), our principal place of business, are required to be \_\_\_\_\_\_ percent lower than resident bidders by state law. A copy of the statute is attached.
- [] Non-resident bidders in \_\_\_\_\_(give state), our principal place of business, are not required to underbid resident bidders.
- [] Our principal place of business or corporate offices is in the State of Texas.

## **BIDDER:**

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

Signature:

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

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

## **BONDING COMPANY INFORMATION**

The following person, firm, or corporation has agreed to execute the required payment and performance bonds in the event this contract is awarded to the bidder:

Name of Surety:	
Mailing Address:	-
City, State, Zip:	
Telephone Number:	
Is surety authorized to operate in Texas?	
Is surety aware of size of project?	
Does surety have adequate authorization and resources to cover bonds for the ar contract?	nount of this
Rating from Best's Key Rating Guide	

Project: LTD Office Parking Lot Improvements Point, Texas

Name of Bidder

## **NON-COLLUSION AFFIDAVIT** FOR PRIME CONTRACTOR

State of	)	
	)	SS.
County of	)	

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

(1) He is \_\_\_\_\_

of

, the Bidder that has submitted the referenced Bid;

(2) He is fully informed respecting the	preparation and o	contents of the	referenced Bic	ł
submitted to		(Owner	) in connection	1
with		(name of c	ontract), and o	f
weather and always a star and we are attended as all D		-	-	

pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Bid in connection with such Contract, or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in the referenced Bid or in the Bid of any other bidder, or to fix an overhead, profit, or cost element of the Bid price or the Bid price of any other Bidder, or to secure through collusion, conspiracy, connivance, or unlawful agreement any advantage against the (Owner) or any person

interested in the proposed Contract; and

(5) The price or prices quoted in the referenced Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

(Signed) _	
- Subscribed and sworn to before me by the said of, 20	Titleday
By: Notary Public	
County,	[Notary Seal]
My commission expires, 20	

# NON-COLLUSION AFFIDAVIT FOR PROPOSED SUBCONTRACTOR

State of)
) ss. County of)
, being first duly sworn, deposes and says that:
(1) He is of, hereinafter referred to as the "Subcontractor";
<ul> <li>(2) He is fully informed respecting the preparation and contents of the subcontractor's Proposal submitted by the subcontractor to, the Contractor for certain work in connection with (name of contract), for (Owner);</li> <li>(3) Such subcontractor's Proposal is genuine and is not a collusive or sham proposal:</li> </ul>
(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Proposal in connection with such Contract, or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in said subcontractor's Proposal or any other subcontractor's proposal, or to secure through collusion, conspiracy, connivance, or unlawful agreement any advantage against the (Owner) or any person interested in the proposed Contract; and
(5) The price or prices quoted in the subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit. (Signed)
Title
Subscribed and sworn to before me by the said on this day of, 20,
By: Notary Public County, [Notary Seal]
My commission expires, 20
My commission expires, 20

## **Request for Taxpayer** Identification Number and Certification

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

	2 Business name/disregarded entity name, if different from above	
e. ns on page 3.	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of following seven boxes.         Individual/sole proprietor or single-member LLC	he d Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): te Exempt payee code (if any)
Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is <b>not</b> disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. Other (see instructions) ► (Applies to accounts maintained outside		k is that code (if any) (Applies to accounts maintained outside the U.S.)
See Sp	Address (number, street, and apt. or suite no.) See instructions.      Requester's na      City, state, and ZIP code	me and address (optional)

h ally you resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see What Name and Number To Give the Requester for guidelines on whose number to enter.

Part II	Certification

Under penalties of perjury, I certify that:

- 1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- 2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- 3. I am a U.S. citizen or other U.S. person (defined below); and

4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign	Signature of		
Here	U.S. person 🕨	Date 🕨	

## **General Instructions**

Section references are to the Internal Revenue Code unless otherwise noted

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

## Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

· Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)

or

Employer identification number

- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

**Note:** If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

An individual who is a U.S. citizen or U.S. resident alien;

 A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;

• An estate (other than a foreign estate); or

• A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

 In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;

• In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and

• In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

**Example.** Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

### **Backup Withholding**

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the instructions for Part II for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see Special rules for partnerships, earlier.

### What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

### **Updating Your Information**

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

### Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

**Civil penalty for false information with respect to withholding.** If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

**Criminal penalty for falsifying information.** Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

**Misuse of TINs.** If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

## **Specific Instructions**

#### Line 1

You must enter one of the following on this line; do not leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. Sole proprietor or single-member LLC. Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. Partnership, LLC that is not a single-member LLC, C corporation, or S corporation. Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. Other entities. Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

#### Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

#### Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n)	THEN check the box for
Corporation	Corporation
<ul> <li>Individual</li> <li>Sole proprietorship, or</li> <li>Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.</li> </ul>	Individual/sole proprietor or single- member LLC
<ul> <li>LLC treated as a partnership for U.S. federal tax purposes,</li> <li>LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or</li> <li>LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is pot disregarded for LLS federal tax</li> </ul>	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
purposes.	
Partnership	Partnership
Trust/estate	Trust/estate

#### Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

#### Exempt payee code.

• Generally, individuals (including sole proprietors) are not exempt from backup withholding.

• Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.

• Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.

• Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1 - An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2-The United States or any of its agencies or instrumentalities

3-A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4-A foreign government or any of its political subdivisions, agencies, or instrumentalities

#### 5-A corporation

6-A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

 $7-\mathrm{A}$  futures commission merchant registered with the Commodity Futures Trading Commission

8-A real estate investment trust

 $9-{\rm An}$  entity registered at all times during the tax year under the Investment Company Act of 1940

10-A common trust fund operated by a bank under section 584(a)

11-A financial institution

 $12-A \, \text{middleman}$  known in the investment community as a nominee or custodian

13 – A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for	THEN the payment is exempt for
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 <sup>1</sup>	Generally, exempt payees 1 through 5 <sup>2</sup>
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

<sup>1</sup> See Form 1099-MISC, Miscellaneous Income, and its instructions.

<sup>2</sup> However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

**Exemption from FATCA reporting code.** The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A-An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B-The United States or any of its agencies or instrumentalities C-A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D-A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G-A real estate investment trust

 $\rm H-A$  regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I-A common trust fund as defined in section 584(a)

J-A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M-A tax exempt trust under a section 403(b) plan or section 457(g) plan

**Note:** You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

#### Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

#### Line 6

Enter your city, state, and ZIP code.

### Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See What Name and Number To Give the Requester, later, for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov.* You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/Businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

**Note:** Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

### Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

**3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

### What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup>
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
<ol> <li>Custodial account of a minor (Uniform Gift to Minors Act)</li> </ol>	The minor <sup>2</sup>
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee <sup>1</sup>
b. So-called trust account that is not a legal or valid trust under state law	The actual owner <sup>1</sup>
<ol> <li>Sole proprietorship or disregarded entity owned by an individual</li> </ol>	The owner <sup>3</sup>
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)() (A))	The grantor*
For this type of account:	Give name and EIN of:
<ol> <li>Disregarded entity not owned by an individual</li> </ol>	The owner
9. A valid trust, estate, or pension trust	Legal entity <sup>4</sup>
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax- exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
<ol> <li>Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Beculations section 1.671-4(b)(2)(0(B))</li> </ol>	The trust

<sup>1</sup> List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

<sup>3</sup> You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

<sup>4</sup> List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

\*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

### Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- · Ensure your employer is protecting your SSN, and
- · Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft. The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov*. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at *spam@uce.gov* or report them at *www.ftc.gov/complaint*. You can contact the FTC at *www.ftc.gov/idtheft* or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see *www.identityTheft.gov* and Pub. 5027.

Visit www.irs.gov/ldentityTheft to learn more about identity theft and how to reduce your risk.

### **Privacy Act Notice**

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

CONFLICT OF INTEREST QUESTIONNAIRE For vendor doing business with local governmental entity	FORM CIQ	
This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.	OFFICE USE ONLY	
This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).	Date Received	
By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. <i>See</i> Section 176.006(a-1), Local Government Code.		
A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.		
1 Name of vendor who has a business relationship with local governmental entity.		
2 Check this box if you are filing an update to a previously filed questionnaire. (The law re completed questionnaire with the appropriate filing authority not later than the 7th busines you became aware that the originally filed questionnaire was incomplete or inaccurate.)	equires that you file an updated s day after the date on which	
3 Name of local government officer about whom the information is being disclosed.		
Name of Officer		
<ul> <li>Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.</li> <li>A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?</li> <li>Yes</li> <li>No</li> <li>B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or a family member of the officer AND the taxable income is not received from the local government officer or a family member of the officer AND the taxable income is not received from the local government al entity?</li> </ul>		
Describe each employment or business relationship that the vendor hamed in Section 1 in other business entity with respect to which the local government officer serves as an o ownership interest of one percent or more.	aintains with a corporation or fficer or director, or holds an	
Check this box if the vendor has given the local government officer or a family member as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.0	of the officer one or more gifts 003(a-1).	
Signature of vendor doing business with the governmental entity	Date	

## CONFLICT OF INTEREST QUESTIONNAIRE For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

### Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

 $(\bar{\textbf{i}})$  a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

### Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.



STANDARD FORM OF AGREEMENT (CONTRACT)

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

This Agreement is by and between **Sabine River Authority of Texas**, a Texas governmental entity ("Owner") and \_\_\_\_\_\_, a Contractor ("Contractor").

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

Owner and Contractor hereby agree as follows:

### ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: site preparation, erosion control and tree protection, demolition, grading, vehicular paving, parking lot striping and signage, and pedestrian concrete paving, and all items necessary to construct the Site Improvements, complete and in place as shown in the plans and specifications.

### **ARTICLE 2—THE PROJECT**

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: The project will improve the existing facility parking lot by removing the existing parking lot, grading the site, adding a new parking lot with entry road connection, and adding concrete sidewalks.

### **ARTICLE 3—ENGINEER**

3.01 The Owner has retained Kimley-Horn ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

### **ARTICLE 4—CONTRACT TIMES**

- 4.01 *Time is 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.
- 4.03 *Contract Times: Days* 
  - A. The Work will be substantially complete within \_\_\_\_\_ consecutive calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within \_\_\_\_\_ consecutive calendar days after the date when the Contract Times commence to run.
- 4.05 *Liquidated Damages* 
  - A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and

Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

- 1. *Substantial Completion:* Contractor shall pay Owner \$500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
- 2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$500 for each day that expires after such time until the Work is completed and ready for final payment.
- 3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

### ARTICLE 5—CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:
  - A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit. Total Contract Amount: \$\_\_\_\_\_.

### **ARTICLE 6—PAYMENT PROCEDURES**

- 6.01 Submittal and Processing of Payments
  - A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.
- 6.02 *Progress Payments; Retainage* 
  - A. Owner shall make progress payments on the basis of Contractor's Applications for Payment within 30 days of receiving engineer approved pay request, as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
    - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited

to liquidated damages, in accordance with the Contract and Texas Water Code Chapter 49.276 .

- a. 95% percent of the value of the Work completed (with the balance being retainage).
- b. 95% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

### 6.03 Final Payment

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.
- 6.04 *Consent of Surety* 
  - A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

### 6.05 Interest

A. All amounts not paid when due will bear interest at the lowest amount allowed by law.

### **ARTICLE 7—CONTRACT DOCUMENTS**

- 7.01 Contents
  - A. The Contract Documents consist of all of the following:
    - 1. This Agreement.
    - 2. Bonds:
      - a. Performance bond (together with power of attorney).
      - b. Payment bond (together with power of attorney).
    - 3. General Conditions.
    - 4. Supplementary Conditions.
    - 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
    - 6. Drawings (not attached but incorporated by reference) consisting of 9 sheets with each sheet bearing the following general title: **LTD Office Parking Lot Improvements**
    - 7. Addenda (numbers 1 to 2, inclusive).
    - 8. Exhibits to this Agreement (enumerated as follows):
      - a. Contractors Bid (C-410)

- 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
  - a. Notice to Proceed.
  - b. Work Change Directives.
  - c. Change Orders.
  - d. Field Orders.
  - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.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 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

### ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

- 8.01 *Contractor's Representations* 
  - A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
    - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
    - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
    - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
    - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
    - 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
    - 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

- 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- 8. 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.
- 9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- 10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

### 8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

### 8.03 Standard General Conditions

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC<sup>®</sup> C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

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

This Agre	eement will be effective on	(which is the Effection
	ne contracty.	Contractor
owner.		contractor.
Sabine	River Authority of Texas	(tuned or printed name of organization)
	(typed of printed name of organization)	(typed of printed name of organization)
ву:	(individual's signature)	By:
<b>.</b> .	(maiviadai s signature)	(individual s signature)
Date:	(data signad)	Uate:(data signed)
N	(uute signeu)	(uute signeu)
Name:	Jason Stovall	Name:(tunod or printed)
	(typed of printed)	(typed of printed)
Title:	Division Manager	Title:
	(typed or printed)	(typed or printed) (If <b>[Type of Entity]</b> is a corporation, a partnership, or a jo venture, attach evidence of authority to sign.)
Attest:		Attest:
	(individual's signature)	(individual's signature)
Title:		Title:
	(typed or printed)	(typed or printed)
Address for giving notices:		Address for giving notices:
Sabine l	River Authority of Texas	
169 Rcr	1480	
Point, T	exas, 75472	
Designa	ated Representative:	Designated Representative:
Name:		Name:
	(typed or printed)	(typed or printed)
Title:		Title:
	(typed or printed)	(typed or printed)
Address	5:	Address:
Phone:		Phone:
Email:		Email:
		License No.:
		(where applicable)
		State:

## **NOTICE TO PROCEED**

Owner:	Sabine River Authority of Texas	Owner's Project No.:	RFB 25-0302	
Engineer:	Kimley Horn	Engineer's Project No.:	068925103	
Contractor:		Contractor's Project No.:		
Project:	LTD Office Parking Lot Improvements			
Contract Name:	LTD Office Parking Lot Improvements			
Effective Date of Contract:				

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on \_\_\_\_\_\_ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is \_\_\_\_\_ from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of \_\_\_\_\_\_; and the number of days to achieve readiness for final payment is \_\_\_\_\_ from the commencement date of the Contract Times, resulting in a date for readiness for final payment of \_\_\_\_\_\_.

Before starting any Work at the Site, Contractor must comply with the following:

Notify Owner and Engineer Project Representative and Project Manager when work will begin.

Name (printed):

Title:

Date Issued:

Copy: Sabine River Authority of Texas



# **INSURANCE CERTIFICATES** (to be inserted at time of execution)



**PERFORMANCE and PAYMENT BONDS** 

## **PERFORMANCE BOND**

Contractor	Surety			
Name:	Name:			
Address (principal place of business):	Address (principal place of business):			
Owner	Contract			
Name: Sabine River Authority of Texas	Description (name and location):			
Mailing address (principal place of business):	LTD Office Parking Lot Improvements Point, TX			
169 Rcr 1480				
Point, TX 75472	Contract Price:			
	Effective Date of Contract:			
Bond				
Bond Amount:				
Date of Bond:				
(Date of Bond cannot be earlier than Effective Date of Contract)				
Modifications to this Bond form:				
Surety and Contractor, intending to be legally bound	d hereby, subject to the terms set forth in this			
Performance Bond, do each cause this Performance	Bond to be duly executed by an authorized officer,			
agent, or representative.				
Contractor as Principal	Surety			
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)			
By:	By:			
(Signature)	(Signature)(Attach Power of Attorney)			
Name:	Name:			
(Printed or typed)	(Printed or typed)			
	nue			
Attest:	Attest:			
(Signature)	(Signature)			
Name: (Printed or typed)	Name:(Printed or typed)			
Title:	Title:			
Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.				

and American Society of Civil Engineers. All rights reserved. Modified by SRA-TX.

- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
- 2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
- 3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
  - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
  - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
  - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
- 4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
- 5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
  - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
  - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
  - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
  - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
  - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
  - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
  - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

- 14. Definitions
  - 14.1. Balance of the Contract Price—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
  - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
  - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
  - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
  - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 16. Modifications to this Bond are as follows: [None]
# **PAYMENT BOND**

Contractor	Surety	
Name:	Name:	
Address (principal place of business):	Address (principal place of business):	
Owner	Contract	
Name: Sabine River Authority of Texas Mailing address (principal place of business): 169 Rcr 1480	Description (name and location): LTD Office Parking Lot Improvements Point, TX	
Point, 1X 75472	Contract Price:	
	Effective Date of Contract:	
Bond		
Bond Amount:		
Date of Bond:		
<ul> <li>(Date of Bond cannot be earlier than Effective Date of Contract)</li> <li>Modifications to this Bond form:</li> <li>□ None □ See Paragraph 18</li> </ul>		
Surety and Contractor, intending to be legally bour Payment Bond, do each cause this Payment Bond	nd hereby, subject to the terms set forth in this to be duly executed by an authorized officer, agent, or	
Contractor as Principal	Surety	
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)	
By:(Signature)	By: (Signature)(Attach Power of Attorney)	
Name:	Name:	
(Printed or typed)	(Printed or typed) Title:	
Attost		
(Signature)	(Signature)	
Name:	Name:	
(Printed or typed)	(Printed or typed)	
Title:	Title:	
Notes: (1) Provide supplemental execution by any additional p Contractor, Surety, Owner, or other party is considered plural	arties, such as joint venturers. (2) Any singular reference to where applicable.	

- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
- 2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
- 3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
- 4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
- 5. The Surety's obligations to a Claimant under this Bond will arise after the following:
  - 5.1. Claimants who do not have a direct contract with the Contractor
    - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
- 6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
- 7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2. Pay or arrange for payment of any undisputed amounts.
  - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

- 8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
- 9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
- 10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
- 11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
- 14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
- 15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
- 16. Definitions
  - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
    - 16.1.1. The name of the Claimant;
    - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
    - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
    - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
- 16.1.7. The total amount of previous payments received by the Claimant; and
- 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 18. Modifications to this Bond are as follows: None

# CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Sabine River Authority of Texas
Engineer:	Kimley-Horn
Contractor:	
Project:	LTD Office Parking Lot Improvements
Contract Name:	LTD Office Parking Lot Improvements

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

RFB 25-0302 068925103

This  $\Box$  Preliminary  $\Box$  Final Certificate of Substantial Completion applies to:

 $\Box$  All Work  $\Box$  The following specified portions of the Work:

Date of Substantial Completion: \_\_\_\_

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

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

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities:  $\Box$  None  $\Box$  As follows:

Amendments to Contractor's Responsibilities:  $\Box$  None  $\Box$  As follows:

The following documents are attached to and made a part of this Certificate:

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

Engineer

By (signature):	
Name (printed):	
Title:	

#### NOTICE OF ACCEPTABILITY OF WORK

Owner:	Sabine River Authority of Texas	Owner's Project No.:	RFB 25-0302
Engineer:	Kimley-Horn	Engineer's Project No.:	068925103
Contractor:		Contractor's Project No.:	
Project:	LTD Office Parking Lot Improvements		
Contract Name:	LTD Office Parking Lot Improvements		
Notice Date:	Effective Date of the O	Construction Contract:	

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated April 23<sup>rd</sup>, 2024 ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

- 1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
- 2. This Notice reflects and is an expression of the Engineer's professional opinion.
- 3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
- 4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
- 5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
- 6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By (signature):	
Name (printed):	
Title:	



**GENERAL CONTRACT CONDITIONS** 

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## **ARTICLE 1—DEFINITIONS AND TERMINOLOGY**

### 1.01 Defined Terms

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

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

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

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

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

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

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

# 1.02 Terminology

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

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

# **ARTICLE 2—PRELIMINARY MATTERS**

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

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

### 2.02 *Copies of Documents*

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

# 2.03 Before Starting Construction

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

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

# 2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

# 2.05 Acceptance of Schedules

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

### 2.06 Electronic Transmittals

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

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

### 3.01 Intent

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

### 3.02 *Reference Standards*

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

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

# 3.03 *Reporting and Resolving Discrepancies*

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

# 3.04 Requirements of the Contract Documents

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

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

# 3.05 *Reuse of Documents*

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

# ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

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

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.
- 4.02 *Starting the Work* 
  - A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.
- 4.03 *Reference Points* 
  - A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

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

# 4.04 *Progress Schedule*

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

# 4.05 Delays in Contractor's Progress

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

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
  - 1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
  - 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
  - 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
  - 1. The circumstances that form the basis for the requested adjustment;
  - 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
  - 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
  - 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
  - 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

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

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

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

# 5.02 Use of Site and Other Areas

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

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

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

# 5.03 Subsurface and Physical Conditions

- A. *Reports and Drawings*: The Supplementary Conditions identify:
  - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
  - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
  - 3. Technical Data contained in such reports and drawings.
- B. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
  - 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
  - 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

# 5.04 Differing Subsurface or Physical Conditions

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

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

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

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

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

### 5.05 Underground Facilities

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

- 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
- 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
- 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. Engineer's Review: Engineer will:
  - 1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  - identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  - 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  - 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. Owner's Statement to Contractor Regarding Underground Facility: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. Possible Price and Times Adjustments
  - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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

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

# 5.06 Hazardous Environmental Conditions at Site

- A. *Reports and Drawings*: The Supplementary Conditions identify:
  - 1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
  - 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

of construction to be employed by Contractor, and safety precautions and programs incident thereto;

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

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

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

# ARTICLE 6—BONDS AND INSURANCE

# 6.01 *Performance, Payment, and Other Bonds*

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

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

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.
- 6.02 Insurance—General Provisions
  - A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
  - B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
  - C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
  - D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

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

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

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

# 6.03 *Contractor's Insurance*

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

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

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

### 6.05 *Property Losses; Subrogation*

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

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

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

# 6.06 Receipt and Application of Property Insurance Proceeds

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

# ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

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

### 7.02 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.
- 7.03 Labor; Working Hours
  - A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.
- 7.04 Services, Materials, and Equipment
  - A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
  - B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
  - C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.
- 7.05 *"Or Equals"* 
  - A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
    - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
      - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
        - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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

# 7.06 Substitutes

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

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

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

### 7.07 Concerning Subcontractors and Suppliers

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

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

# 7.08 Patent Fees and Royalties

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

## 7.09 Permits

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

## 7.10 Taxes

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

### 7.11 Laws and Regulations

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

# 7.12 *Record Documents*

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

## 7.13 Safety and Protection

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

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

# 7.14 Hazard Communication Programs

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

### 7.15 Emergencies

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

### 7.16 Submittals

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

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

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

- 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
- 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
- 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
- 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.
- D. Resubmittal Procedures for Shop Drawings and Samples
  - 1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
  - 2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
  - 3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.
- E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs
  - 1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
    - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
    - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
    - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

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

## 7.17 Contractor's General Warranty and Guarantee

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

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

# 7.18 Indemnification

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

# 7.19 Delegation of Professional Design Services

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

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

# ARTICLE 8—OTHER WORK AT THE SITE

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

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

# 8.02 *Coordination*

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

### 8.03 Legal Relationships

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

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

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

- 9.01 Communications to Contractor
  - A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.
- 9.02 Replacement of Engineer
  - A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.
- 9.03 Furnish Data
  - A. Owner shall promptly furnish the data required of Owner under the Contract Documents.
- 9.04 Pay When Due
  - A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 Lands and Easements; Reports, Tests, and Drawings
  - A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
  - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
  - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 Insurance
  - A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 Change Orders
  - A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 Inspections, Tests, and Approvals
  - A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 Limitations on Owner's Responsibilities
  - A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 Undisclosed Hazardous Environmental Condition
  - A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements* 
  - A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 Safety Programs
  - A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
  - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

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

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

### 10.03 Resident Project Representative

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

### 10.04 Engineer's Authority

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

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

## 10.05 Determinations for Unit Price Work

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.
- 10.06 Decisions on Requirements of Contract Documents and Acceptability of Work
  - A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

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

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

### 10.08 Compliance with Safety Program

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

# ARTICLE 11—CHANGES TO THE CONTRACT

## 11.01 Amending and Supplementing the Contract

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.
- 11.02 Change Orders
  - A. Owner and Contractor shall execute appropriate Change Orders covering:
    - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
    - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
    - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
    - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
  - B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

### 11.03 Work Change Directives

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

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

### 11.04 Field Orders

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.
- 11.05 Owner-Authorized Changes in the Work
  - A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
  - B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
  - C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

### 11.06 Unauthorized Changes in the Work

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

### 11.07 Change of Contract Price

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

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

### 11.08 Change of Contract Times

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

## 11.09 Change Proposals

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

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

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

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

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

# 11.10 Notification to Surety

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

### ARTICLE 12—CLAIMS

### 12.01 Claims

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

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

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

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

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

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

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

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

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

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

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

### 13.02 Allowances

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

### 13.03 Unit Price Work

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

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

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

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

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

### 14.02 Tests, Inspections, and Approvals

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

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

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

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

# 14.03 Defective Work

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

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

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

### 14.05 Uncovering Work

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

### 14.06 *Owner May Stop the Work*

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

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

# 14.07 Owner May Correct Defective Work

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

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

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

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

- 3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
- 4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. Review of Applications
  - Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
  - 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
    - a. the Work has progressed to the point indicated;
    - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
    - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
  - 3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
    - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
    - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
- 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work;
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
- 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
- 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
  - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. Payment Becomes Due
  - 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.
- E. Reductions in Payment by Owner
  - 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
    - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

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

# 15.02 Contractor's Warranty of Title

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

# 15.03 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

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

# 15.04 Partial Use or Occupancy

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

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

- 1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
- 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
- 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
- 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.
- 15.05 Final Inspection
  - A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

# 15.06 Final Payment

# A. Application for Payment

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

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

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

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

# 15.08 Correction Period

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

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

# ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

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

# 16.02 Owner May Terminate for Cause

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

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

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

# 16.03 Owner May Terminate for Convenience

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

# 16.04 Contractor May Stop Work or Terminate

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

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

# ARTICLE 17—FINAL RESOLUTION OF DISPUTES

# 17.01 Methods and Procedures

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

# ARTICLE 18—MISCELLANEOUS

# 18.01 Giving Notice

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

# 18.02 *Computation of Times*

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

# 18.03 Cumulative Remedies

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

# 18.04 Limitation of Damages

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

# 18.05 No Waiver

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.
- 18.06 Survival of Obligations
  - A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

# 18.07 Controlling Law

A. This Contract is to be governed by the laws of the State of Texas, which the Project is located.

# 18.08 Assignment of Contract

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

# 18.09 Successors and Assigns

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

# 18.10 Headings

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



SUPPLEMENTARY CONDITIONS

# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

# ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC1.01 – Add the following:

51. Working Day- Any day in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of work for a period of not less than 7 hours between 7:00 am an 6:00 pm. Saturdays, Sundays, and legal holidays will not be counted as a work day if not worked. If the CONTRACTOR works any of these days, he will be charged a working day. Work will not be permitted on Saturdays, Sundays, or legal holidays without the prior written approval of the OWNER.

52. Calendar Day – Every day of the month including Saturday, Sunday, legal holidays, rain days, or other adverse weather days.

# ARTICLE 2—PRELIMINARY MATTERS

2.01 Add the following:

D. Texas Ethics Commission – Contractor and Owner shall complete all documentation required to conform with HB 1295 including but not limited to Form 1295 "Certificate of Interested Parties".

E. Prohibition on Boycotting Israel – In accordance with Section 2270.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott Israel; and 2) will not boycott Israel during the term of this contract.

F. Prohibition on Boycotting Power Companies – In accordance with Section 2274.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott power companies and 2) will not boycott power companies during the term of this contract.

G. Prohibition on Companies that discriminate against firearm and ammunition industries - In accordance with Section 2274.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and 2) Will not discriminate during the term of the contract against a firearm entity or firearm trade association.

H. Posting of certain information at Commercial Building Construction Site Required – In accordance with Section 116.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) As soon as practicable after beginning construction of a commercial building project located in this state, the developer of the project shall visibly post the following information at the entrance to the construction site: a) the name and contact information of the developer; and b) a brief description of the project.

### 2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor 3 printed copies of the Contract Documents (including one fully signed counterpart of the Agreement). Electronic portable document format (PDF) shall be available upon request.

# ARTICLE 4—NO CHANGES

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

- 5.03 Subsurface and Physical Conditions
- SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:
  - E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Geotechnical Report, ETTL No. G 6319-24	06/10/2024	Geotechnical

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A		

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at The SRA Lake Tawakoni Office at 169 Rcr 1480, Point, TX 75472 during regular business hours, or may request copies from Engineer.
- 5.06 Hazardous Environmental Conditions

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

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A		

# ARTICLE 6—BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

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

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC<sup>®</sup> C-610, Performance Bond (2010, 2013, or 2018 edition). Performance Bond: By State statute, local governments must require a performance bond from all contractors where such contracts involve construction, alteration, or repair of buildings or other public works projects in excess of \$100,000.00. Such bonds must be executed by a corporate surety authorized to do business in the State of Texas in accordance with Article 7.19-1 Bond of Surety Company; Chapter 7 of the Insurance Code, must be for not less than one-hundred percent (100%) of the contract price, and remain in effect for one year beyond the date of acceptance by the Owner. Performance bonds are conditioned upon "the faithful performance of the work in accordance with the drawings, specifications, and contract documents". These are in effect performance guarantees to assure completion of construction. These bonds are solely for the protection of the Owner. (Texas Government Code 2253.021)

2. Required Payment Bond Form: The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition). Payment Bond: A payment bond is one executed in connection with a contract (construction, alteration, or repair) to assure payment as required by law to all persons supplying labor and materials in the execution of work provided for in the contract. These bonds are required solely for the protection of all such claimants. These, like performance bonds, must be issued by a State approved corporate surety in accordance with Article 7.19-1 Bond of Surety Company; Chapter 7 of the Insurance Code, must also be for not less than one hundred percent (100%) of the contract price, and remain in effect for one year beyond the date of acceptance by the Owner. The \$25,000.00 State requirement (i.e., all contracts over that amount will require the Owner to have one hundred percent (100%) payment bonds) is also the same. (Texas Government Code 2253.021)

6.03 *Contractor's Insurance* 

Add the following language to 6.03.A.

- a) The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner.
- b) Worker's Compensation Insurance: The Contractor shall procure and shall maintain during the life of this Contract Worker's Compensation Insurance, including employer liability insurance and coverages for occupational illness or disease with an available limit of at least \$1,000,000 per occurrence for all of its employees to be engaged in work at the site of the project under this Contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.
- c) Commercial General Liability Insurance: including products/completed operation and broad form property damage limits with an available limit of at least \$1,000,000 per occurrence with a \$2,000,000 aggregate. The policy shall not exclude coverage for explosion, collapse or underground hazards, and pollution, or shall be endorsed for explosion, collapse or underground hazards, and pollution.
- Automobile Liability Insurance: including use of all owned, non-owned and hired vehicles with an available limit of not less than: Bodily Injury \$1,000,000 each person, \$1,000,000 each occurrence:
   Property Damage \$1,000,000 each occurrence, combined limit \$2,000,000.
- e) Longshoremen's and Harborworkers' Compensation Act insurance: to the extent required under such Act with regard to the work to be performed under the Contract.
- f) Excess liability insurance or Umbrella insurance: over all of the foregoing primary policies with an available limit of at least \$5,000,000.00 which follows form on Contractor's other policies.

g) Owner and Engineer shall be listed as additional insured on all insurance, except for Worker's Compensation and Employer's Liability insurance. Contractor shall provide a waiver of subrogation in favor of the Sabine River Authority on all policies.

h) Proof of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the Owner."

# ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

# 7.10 *Taxes*

- SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:
  - A. Owner is exempt by law from **State of Texas** sales and Use Tax Laws, and Federal Excise Tax on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid.

- 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
- 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.
- SC-7.18 Add a new paragraph immediately after Paragraph 7.1B:

C. NOTWITHSTANDING ANYTHING IN PARAGRAPH 7.18.A TO THE CONTRARY, IN THE EVENT A CLAIM ARISES FROM BODILY INJURY (INCLUDING, WITHOUT LIMITATION, SICKNESS OR DISEASE) OR DEATH SUFFERED OR SUSTAINED BY AN EMPLOYEE OF CONTRACTOR OR ANY OF ITS AGENTS OR ITS SUBCONTRACTORS OF ANY TIER, THEN, TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY AND SAVE HARMLESS THE INDEMNIFIED PARTIES, FROM AND AGAINST ANY AND ALL SUCH CLAIMS, WHICH ANY AND ALL OF THEM MAY HEREAFTER SUFFER, INCUR, BE RESPONSIBLE FOR OR PAY OUT, EVEN IF THE CLAIM WAS CAUSED, OR WAS ALLEGED TO BE CAUSED, IN WHOLE OR IN PART, BY THE NEGLIGENCE, FAULT, OMISSION, STRICT LIABILITY, STRICT PRODUCTS LIABILITY, OR NEGLIGENCE PER SE, OF THE INDEMNIFIED PARTIES, IT BEING THE EXPRESS INTENT OF OWNER AND CONTRACTOR THAT CONTRACTOR SHALL BE OBLIGATED TO INDEMNIFY THE INDEMNIFIED PARTIES IN THE MANNER PROVIDED IN THIS PARAGRAPH 7.18.C EVEN FOR THE CONSEQUENCES OF THE INDEMNIFIED PARTIES' OWN NEGLIGENCE, FAULT, OMISSION, STRICT LIABILITY, STRICT PRODUCTS LIABILITY, OR NEGLIGENCE PER SE, WHETHER OR NOT IT IS OR IS ALLEGED TO BE THE SOLE OR A CONCURRING CAUSE OF THE LOSSES GIVING RISE TO THE INDEMNIFIED CLAIMS.

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

# 8.02 Coordination

- SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:
  - C. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
    - 1. **N/A** shall have authority and responsibility for coordination of the various contractors and work forces at the Site;
    - The following specific matters are to be covered by such authority and responsibility: N/A;
    - 3. The extent of such authority and responsibilities is: N/A.

# ARTICLE 10—ENGINEERS STATUS DURING CONSTRUCTION

- 10.03 Resident Project Representative
- SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:
  - 1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

- SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:
  - C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
    - 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings).
    - 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
    - 3. Liaison
      - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
      - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
      - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
    - 4. Review of Work; Defective Work
      - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
      - b. Observe whether any Work in place appears to be defective.
      - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
    - 5. Inspections and Tests
      - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
      - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
    - 6. *Payment Requests:* Review Applications for Payment with Contractor.
    - 7. Completion
      - a. Participate in Engineer's visits regarding Substantial Completion.
      - b. Assist in the preparation of a punch list of items to be completed or corrected.

- c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
- d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
  - 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
  - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
  - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
  - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
  - 5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
  - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
  - 7. Authorize Owner to occupy the Project in whole or in part.

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

SC 15.01.D.1. Replace paragraph in its entirety with the following:

Payment shall be made within 30 days of presentation of the application for Payment to the Owner with Engineer's recommendation, the amount recommended (subject to any owner setoffs) will become due, and when due will be paid by Owner to Contractor.

# ARTICLE 17 FINAL RESOLUTIONS OF DISPUTES

Add the following to 17.01

- C. All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
- D. The Contractor shall submit in detail his claim and his proof thereof.
- E. If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.
- F. Venue for disputes shall lie exclusively in Orange County, Texas and none other.

# ARTICLE 18 MISCELLANEOUS

Add the following Section

18.11 Contractors Field Office

The contractor shall furnish and maintain, during construction of the Improvements embraced in this Contract adequate facilities on the Project area or adjacent thereto for the use of the Local Public Agency and its Engineers as described below:

- 1. Engineers Field Office: Office is not required for this project
- 2. Contractors Office: A field office is not required for this project, however the Contractor shall have readily accessible copies of plans and contract documents and working drawings shall be kept on site. Provide cell phone, emails, and other communications for all superintendents, foreman, and project managers.

#### WORK CHANGE DIRECTIVE NO.:

Owner:	Sabine River Authority of Te	exas	Owner's Project No.:	RFB 25-0302
Engineer:	Kimley-Horn		Engineer's Project No.:	068925103
Contractor:			Contractor's Project No.:	
Project:	LTD Office Parking Lot Impro	ovements		
Contract Name:	LTD Office Parking Lot Impro	ovements		
Date Issued:	Effective Date of Work Change Directive:			

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

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

#### Notes to User-Check one or both of the following

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

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

Contract Price	ce: \$			[increase] [decrease] [not yet estimated]		
Contract Tim	ne:	days		[increase] [decrease] [not yet estimated		
Basis of estim	ated change	e in Contract	Price:			
🗆 Lump Sum	Unit Price	e 🗆 Cost of t	he Work 🗌 Other:			
Reco	ommended b	oy Engineer		Authorized by Owner		
By:						
Title:						

Date:

#### FIELD ORDER NO.:

Owner:	Sabine River Authority of Texas	Owner's Project No.:	RFB 25-0302
		Engineer's Project	
Engineer:	Kimley-Horn	No.:	068925103
		Contractor's Project	
Contractor:		No.:	
Project:	LTD Office Parking Lot Improvements		
Contract Name:	LTD Office Parking Lot Improvements		
Date Issued:	Effective Date	of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

#### **Reference:**

Specification Section(s):

Drawing(s) / Details (s):

#### **Description:**

#### Attachments:

#### **Issued by Engineer**

Ву: \_\_\_\_\_

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



WAGE RATE DETERMINATION

"General Decision Number: TX20240084 01/05/2024

Superseded General Decision Number: TX20230084

State: Texas

Construction Type: Heavy

Counties: Cass, Cherokee, Erath, Fannin, Franklin, Hood, Hopkins, Marion, Montague, Morris, Nacogdoches, Navarro, Palo Pinto, Panola, Rains, Red River, Somervell, Titus, Van Zandt and Wood Counties in Texas.

#### HEAVY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<pre>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</pre>	<ul> <li>Executive Order 14026 generally applies to the contract.</li> <li>The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.</li> </ul>
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul> <li>Executive Order 13658 generally applies to the contract.</li> <li>The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.</li> </ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

SAM.gov

#### Modification Number Publication Date 0 01/05/2024

SUTX2009-129 04/21/2009

		Rates	Fringes
CEMENT MAS	SON/CONCRETE FINISHER\$	13.00 **	0.00
LABORER:	Common or General\$	8.61 **	0.00
LABORER:	Pipelayer\$	9.94 **	0.00
OPERATOR:	Backhoe/Trackhoe\$	11.75 **	0.00
OPERATOR:	Bulldozer\$	14.25 **	0.00
OPERATOR:	Loader (Front End)\$	11.52 **	0.00
TRUCK DRI	/ER\$	10.80 **	0.26

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

\_\_\_\_\_

\*\* Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at

https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification

and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations Wage and Hour Division U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

\_\_\_\_\_

END OF GENERAL DECISION"



**SCOPE OF WORK** 

# **Scope of Work**

The Work is generally described as follows: site preparation, erosion control and tree protection, demolition, grading, vehicular paving, parking lot striping and signage, and pedestrian concrete paving, and all items necessary to construct the Site Improvements, complete and in place as shown in the plans and specifications.

All work shall comply with the Texas Accessibility Standards (TAS) of the Architectural Barriers Act Article 9102, Texas Civil Statutes, effective April 1, 1994 and subsequent adopted updates. This standard is prepared and administered by the Texas Department of Licensing and Regulations, Policies and Standards Division, Architectural Barriers Section, PO Box 12157, Austin, Texas 78711, 920 Colorado, Fourth Floor, Austin, Texas 78701, (512) 463-3211.



**TECHNICAL SPECIFICATIONS** 

# **DIVISION 1 – GENERAL REQUIREMENTS**

#### SECTION 01010

#### SUMMARY OF WORK

#### PART I – GENERAL

- 1.1 Work covered by Contract Documents for LTD Office Parking Lot Improvements.
  - A. This project shall consist of all work, complete and in place including but not limited to: Site Preparation and Tree Protection, Demolition, Grading, Temporary Erosion Control, Vehicular Concrete and Asphalt Paving, Parking Lot Striping, Site Furnishings, and all items necessary to construct the Site Improvements, complete and in place as shown in the plans and specifications.
  - B. All work shall comply with the Texas Accessibility Standards (TAS) of the Architectural Barriers Act Article 9102, Texas Civil Statutes, effective April 1, 1994 and subsequent adopted updates. This standard is prepared and administered by the Texas Department of Licensing and Regulations, Policies and Standards Division, Architectural Barriers Section, PO Box 12157, Austin, Texas 78711, 920 Colorado, Fourth Floor, Austin, Texas 78701, (512) 463-3211.
  - C. Contractor's Duties
    - 1. Except as specifically noted otherwise, provide and pay for:
      - a. Labor, materials, and equipment.
      - b. Tools, construction, equipment, and machinery.
      - c. Other facilities and services necessary for proper execution and completion of work.
    - 2. Owner is exempt from sales tax on products permanently incorporated into the work. Follow instructions issued by State Comptroller's Office for purchase of such products free of tax.
    - 3. Secure as necessary for proper execution and conditions of work:
      - a. License/Business Registration; paid by Contractor.
      - b. Permits/Approvals required by governing entities; paid by Contractor.
    - 4. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of work.
    - 5. Promptly submit written notice to the Owner of observed variances of Contract Documents from legal requirements.
    - 6. Enforce strict discipline and good order among employees. Do not employ on work:
      - a. Unfit persons.
      - b. Persons not skilled in assigned task.
    - 7. Checking Dimensions at Site:
      - a. Verify measurements as necessary before ordering any materials or doing any work.
      - b. Report any discrepancies to the Owner for instructions before proceeding.
    - 8. Approval of Working Conditions:
      - a. Notify the Owner of any unsatisfactory condition before beginning to perform work.
      - b. Beginning of work by Contractor shall constitute his acceptance of substrate and surface conditions.
    - 9. Under no condition shall a portion of work proceed prior to preparatory work having been completed, cured, dried, or otherwise made satisfactory to receive such related work.
    - 10. The Contractor shall establish and maintain their own grades, lines, levels, and benchmarks. Verify all grades, lines, levels, and dimensions shown on drawings and report in writing any observed errors or inconsistencies to the Owner before beginning work. Establish their own basic lines and grades in conformity with Owner's permanent benchmarks and coordinate systems for the construction area.

- 11. It is the intent of this project that all items of work include the materials, standards, trades, procedures, etc., customarily associated with the items of work, <u>whether or not such materials</u>, standards, trades, procedures, etc., are expressly stated. In case of ambiguity, unclearness, or conflict in these Construction Documents, the Contractor shall submit the matter promptly in writing for determination by the Owner. The Owner will render in writing a clarification reasonably inferable from these Documents and consistent with the intent of this proposed work.
- 12. Contractor shall employ only experienced and qualified workers and subcontractors.

#### 1.2 Contracts

A. Perform work under Lump Sum Contract

#### 1.3 Conditions of the Contract

- A. The following Special Conditions also shall govern the work under each Section in the Technical Requirements.
  - 1. Uninterrupted Operations. Work on this Project shall not interrupt or compromise the routine operations of the Owner unless specifically authorized by the Architect/Engineer.
  - 2. Experienced Supervision. Employ a competent Supervisor for work on this Project, approved by the Owner, skilled in coordination of the trades involved and the type of scheduling required by a project of this nature. Replace approved Supervisor only with the permission of the Owner.
  - 3. Interrelation of Documents. The interrelation of the Specifications, the Drawings, and the Schedules are generally as follows:
    - a. The Specifications determine the nature and setting of the several materials.
    - b. The Drawings establish the quantities, dimensions, and details.
    - c. The Schedules give locations.

Anything mentioned in the Specifications and not shown on the Drawings and/or the Schedules, or shown in the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. Should there be a conflict within or among the Drawings or the Specifications or any other Contract Document, perform or furnish <u>the better quality or greater quantity</u> of work or materials. Figures given on details govern small scale drawings. The "Section Includes" statement, placed in the front of each Section of the Specifications, is intended to designate the scope and location of the work included therein, either generally or specifically. It is not intended to limit the Scope of Work should plans, schedules, or notes indicate an increased scope. Inadvertent omission of an item from its proper Section in the Specifications and its inclusion in another Section of the Specifications shall not relieve the Contractor of responsibilities for the item specified.

- 4. Contract Administration. The Architect/Engineer has the authority to act on behalf of the Owner to the extent provided for in the Contract Documents, unless otherwise modified by written instrument which will be shown to the Contractor at his request. All instructions affecting Contract Sum, Contract Time, or Contract interpretations shall be confirmed expeditiously in writing, with copies furnished to the Owner's designated representative and the Contractor by the party issuing the instructions.
- 5. Conduct of the Contractor
  - a. Type of Dress:
    - 1.) Workmen must wear shirts at all times.
    - 2.) Wearing apparel that portrays obscene or vulgar language and/or art work is prohibited.
  - b. Alcoholic Beverages and other Drugs:
    - 1.) Alcoholic beverages and other drugs will not be permitted on the property of the Owner.
    - 2.) Persons under the influence of alcoholic beverages and/or any other drug are prohibited from the Project.

- c. Obscenity:
  - 1.) The Owner reserves the right to require dismissal from the Project of any person using obscene gestures.
  - Portable Radios and Other Sound-Producing Devices:
    - 1.) Hold the volume of portable radios or other sound-producing devices to such a level so that individuals not related to the construction are not disturbed.
    - 2.) Do not broadcast obscenity.

#### 1.4 Contractor Use of Premises

- A. Confine operations at site to areas permitted by:
  - 1. Law.
  - 2. Ordinance.

d.

- 3. Permits.
- 4. Contract Documents.
- B. Limit use of site and premises to allow:
  - 1. Uninterrupted Owner activity where required for Owner's business purposes.
  - 2. Work by Others and Work by Owner.
  - 3. Use of site and premises by public where required for Owner's business purposes.
- C. Construction Operations:
  - 1. Yard Operations and/or New Construction: Limited to areas noted on Drawings unless specifically approved otherwise by the Owner.
  - 2. Protection:
    - a. Take over and assume responsibility for the premises necessary for each portion of the Work. Provide and maintain all protections required by governing laws, regulations, and ordinances. Be responsible for any loss or damage caused by workmen to the property of the Owner or to the work or materials installed. Make good any loss, damage, or injury without cost to the Owner.
    - b. The protection of adjacent property shall include, but will not necessarily be limited to, the erection and maintenance of shoring, underpinning, and fences as necessary to protect and to support existing work to be left in place.
    - c. Protect against damage to all trees and all shrubs on the site which do not have to be removed for the Work. Remove or trim any tree or shrub only with the specific approval of the Owner.
    - d. Send proper notices, make necessary arrangements, and perform other services required for the care, protection, and maintenance of utilities, including fire hydrants, piping, wires, and all other such items on and around the building site.
    - e. At no additional cost to the Owner, hold the Owner harmless from, and make good, any damage occurring as a result of the Contractor's failure to provide required protection.
  - 3. Other:
    - a. No fires on the site.
    - b. No dumping on the Owner's property.
    - c. Do not unreasonably encumber site with materials or equipment.
    - d. Assume full responsibility for protection and safekeeping of products stored on premises.
    - e. Obtain and pay for use of additional storage or work areas needed for operations.

#### 1.5 Concealed Piping and Conduit

- A. Should active piping or conduit be encountered below grade or concealed by existing construction and be found at variance with the conditions indicated by the Drawings and Specifications, relocate such piping and/or conduit as directed by the Owner.
- B. Contract Sum shall be adjusted on the following basis:
  - 1. If the concealed condition would not reasonably be anticipated by a competent workman, the Contractor shall be fairly compensated as determined by the Owner.
  - 2. If, in the judgement of the Owner, the concealed condition could reasonably be anticipated by a competent workman, it shall be understood that the conditions were provided for in the bid and no additional compensation shall be due the Contractor. The Contractor shall be responsible for properly remedying the condition in a manner acceptable to the Owner.
  - 3. Any additional compensation shall be net cost of labor and materials only.

#### 1.6 Substantial Completion

A. Reference Section 01700 – Project Closeout for Substantial Completion Requirements.

#### **PART II – PRODUCTS**

Not used.

#### **PART III - EXECUTION**

- 3.1 Means and Methods
  - A. Unless otherwise expressly provided in the Contract Documents, the means and methods of construction shall be such as the Contractor may choose, subject, however, to the Owner's right to reject means and methods proposed by the Contractor which:
    - 1. will constitute or create a hazard to the work or to persons or property; or
    - 2. will not produce finished work in accordance with the terms of the Contract.
  - B. The Owner's acceptance of the Contractor's means and methods of construction or the Owner's failure to exercise his right to reject such means or methods shall not relieve the Contractor of his obligation to accomplish the result intended by the Contract; nor shall the exercise of such right to reject create a cause of action for damages.

#### 3.2 Cleaning Up

A. Contractor shall clean and secure the work area at the end of each work day.

#### END OF SECTION 01010

#### SECTION 01020

#### CONTRACT CONSIDERATIONS

#### PART 1 – GENERAL

#### 1.1 GENERAL REQUIREMENTS

A. Articles and portions of articles of the General Conditions and Supplementary Conditions not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.

#### 1.2 SECTION INCLUDES

- A. Allowances
- B. Schedule of Values
- C. Application for Payment
- D. Proposal Request (Changes)
- E. Architect/Engineer's Supplemental Instructions
- F. Request for Interpretation

#### 1.3 ALLOWANCES

- A. Purchase product under each allowance as directed and approved by the Owner and Landscape Architect/Engineer.
- B. Contractor shall submit any use of allowance items with monthly pay requests.
- C. Any remaining allowance upon final completion shall be returned to The Sabine River Authority through a final Change Order.
- D. The following allowances shall be included in this project:
  - 1. Testing Allowance

#### 1.4 SCHEDULE OF VALUES

- A. Schedule of Values shall be submitted on AIA Document G703 Continuation Sheet of Application and Certification for Payment, or electronic media printout.
- B. Submit a Schedule of Values to the Architect/Engineer within ten calendar days after the date of the Owner-Contractor Agreement. Upon request of the Owner or Architect/Engineer the Contractor shall furnish additional line item breakdown of the Schedule of Values.
- C. Use Table of Contents of Project Manual as basis of format for listing cost of work.
- D. Include separate line items for the following:
  - 1. Site Mobilization
  - 2. Bonds / Insurance
  - 3. Permits / Fees
  - 4. Supervision / PM
  - 3. Contractor's Overhead and Profit
  - 4. Record Drawings
  - 5. Change Orders

#### 1.5 APPLICATION FOR PAYMENT

- A. At least twenty days before each progress payment falls due, the Contractor shall submit to the Landscape Architect/Engineer a notarized, itemized Application For Payment based on the previously approved Schedule Of Values, of 90 percent of the value of labor and materials incorporated in the Work including the last day of the preceding month, less the aggregate total of all previous payments, provided the aggregate total of all monthly payments shall not exceed 90 percent of the contract price. Applications for payment shall be supported by data substantiating the Contractor's right to payment as the Owner or the Landscape Architect/Engineer may require.
- B. Payment will be made for the storing of materials on site, only if stored in a secured and bonded storage container, located on-site or at a designated off-site location.

#### 1.6 CHANGE PROCEDURE

- A. Change Proposal Request (CPR): The Architect/Engineer may issue a Change Proposal Request during the course of the Work. A Proposal Request is a description of a change in the Work under Contract such as additional work or revisions to work already completed, work not yet started or work in progress. The Change Proposal Request is issued to obtain a mutually accepted lump sum for the Work described, add, deduct or no change.
- B. The Contractor shall promptly submit to the Landscape Architect/Engineer his completed Proposal, properly itemized and supported by sufficient substantiating data to permit evaluation.
- C. The Contractor shall not proceed with the Work described in a Proposal Request until the Proposal has been evaluated, found to be fair and equitable by the Architect/Engineer, presented to the Owner for approval and authorized in writing or issued in a Change Order. The Contractor upon issuance of a Proposal Request shall make every attempt to not install items of work that are affected by the Proposal and will notify the Architect/Engineer of any and all items that cannot be postponed.
- D. Unless agreed otherwise, two weeks shall be allowed for evaluation by the Architect/Engineer. If in the opinion of the Architect/Engineer a Proposal is not found to be fair and equitable, the Contractor will reevaluate the cost and no additional cost or time extension will be considered for the time required for the reevaluation.
- E. Two weeks will be required to issue authorization to proceed after the Proposal Request is found to be fair and equitable. The Contractor's Proposal must be valid for the four weeks stated above unless agreed otherwise.

#### 1.7 ARCHITECT/ENGINEER'S SUPPLEMENTAL INSTRUCTIONS

- A. Landscape Architect/Engineer's Supplemental Instructions are issued for work that is not described in sufficient detail or is generally stated but not specifically described to the extent required for the exact construction of such items. This information shall be issued to the Contractor(s) in the form of Architect/Engineer's Supplemental Instructions (A.S.I.), AIA Document G710 and shall be considered a minor change in the Work.
- B. Should the Contractor consider Architect/Engineer's Supplemental Instructions an item to be a change in the Contract Documents, he may notify the Architect/Engineer in writing of the items in dispute and include the actual cost increase or decrease associated with each item.
- C. Claims by the Contractor for additional cost, in response to an Architect/Engineer's Supplemental Instruction, must be received by the Architect/Engineer within 20 days after the posted date on the
A.S.I. or claims will not be considered. Proceeding with work described in an A.S.I. shall constitute waiver of rights to claims.

# 1.8 REQUEST FOR INTERPRETATION

- A. Request for Interpretation (R.F.I.) shall be submitted to the Architect/Engineer in written form through the Owner's selected electronic Project Management Information System, conforming to the following:
  - 1. Each R.F.I. shall be numbered, as for referencing and entered into a log which shall be kept by the Contractor and the Architect/Engineer.
  - 2. R.F.I.'s shall have a designated space titled Category. The Contractor shall enter the proper Category No. in this space, which will identify the urgency of the R.F.I., as shown below:
    - a. Category 1 an emergency and requires an answer in 24-48 hours or work will stop.
    - b. Category 2 a normal request and requires a five (5) working day response.
    - c. Category 3 is low priority and requires an answer within 2-4 weeks.
  - 3. The R.F.I. log shall be reviewed during each progress meeting and any problems discussed.

#### COORDINATION AND MEETINGS

# PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

A. Articles and portions of articles of the General Conditions and Supplementary Conditions not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.

#### 1.2 SECTION INCLUDES

- A. Coordination
- B. Cutting, Patching and Touch-up
- C. Pre-Construction Conference
- D. Progress Meetings

# 1.3 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.
- D. In finished areas, conceal pipes, ducts, and wiring within the construction.

# 1.4 CUTTING, PATCHING AND TOUCH-UP

- A. Employ skilled and experienced installers to perform cutting and patching of new and existing Work; restore Work with new Products.
- B. Establish elevations, lines, and levels and certify that elevations and locations of the Work conform with Contract Documents.
- C. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- D. Execute cutting and demolition by methods that will prevent damage to other work and will provide proper surfaces to receive installation of repairs and new work.
- E. Restore work that has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- F. Refinish entire surfaces to match adjacent finishes to the nearest intersections. Refinish assemblies entirely.

G. Execute excavating and backfilling by methods that will prevent damage to other work and will prevent settlement.

#### 1.5 PRE-CONSTRUCTION CONFERENCE

- A. Prior to the start of the Work of this Contract, the Contractor, the Architect/Engineer and the Owner's Representative will meet for the purpose of reviewing schedules and conditions of the buildings and site.
- B. The location and date of the Pre-Construction Meeting will be scheduled after the Award of Contract to all affected parties.
- C. Pre-Construction Conference Agenda:
  - 1. Introduction of Key Personnel.
  - 2. Dates will be selected for meetings.
  - 3. All required contract forms, bonds and insurance will be reviewed.
  - 4. Schedules and Submittal Process will be reviewed.
  - 5. Use of Site.
  - 6. Contractor questions.

#### 1.6 PROGRESS MEETINGS

- A. Weekly Job Site Progress Meeting Agenda (Contractor/Sub Contractors):
  - 1. Monitor the progress of construction.
  - 2. Discuss any coordination issues.
  - 3. Discuss any shop drawing issues.
  - 4. Discuss questions from subcontractors.
  - 5. Confirm next week meeting date and time.
  - 6. Consultant may be included in Weekly Progress Meetings via virtual meeting and/or on site.
- B. Monthly Job Site Progress Meeting Agenda (Owner/Contractor/Consultant):
  - 1. Review Project Schedule: An up-to-date project schedule shall be submitted at each monthly meeting. Review list of construction items to be observed before being covered or completed.
  - 2. Review Record Set of Drawings: Record set of drawings must be kept current with any changes to utilities, partitions, etc.
  - 3. Review Pay Request: Provide rough-draft copies of the pay request for review. Corrections must be made on the rough-draft copies and a corrected, notarized, and signed copy shall submitted through the Owner's selected Project Management Information System.
  - 4. Discuss any coordination issues.
  - 5. Discuss any shop drawing issues.
  - 6. Discuss any weather days or anticipated delay days.
  - 7. Discuss questions from subcontractors.
  - 8. Confirm next month meeting date and time.
  - 9. Submit Daily Activity Reports.

# PART 1 - GENERAL

- 1.01 RELATED DOCUMENTS:
  - A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.02 SUMMARY:

- A. This Section includes: Administrative and procedural requirements for Alternates.
  - 1. Acceptance or rejection of each Alternate is at discretion of the Trustees. None, any, or all Alternates may be accepted or rejected by the Trustees in order of precedence.
- B. Requirements and descriptions for products and scopes of Work identified as Alternates in the Drawings and Specifications and listed as "Bid Alternative "on the Bid Proposal Form.
- C. Included in this Section: non-technical descriptions of Alternates listed by number only on the Bid Proposal.
- D. Included in other Sections: technical specifications for work revising or adding/deducting from Base Bid work by Alternates.
- E. Unless otherwise specifically provided, the work described in Alternates shall be completed with no increase in Contract Time.
- F. The additional cost or credit for each Alternate shall represent the total adjustment to the contract sum associated with said Alternate.
- G. Refer to the Bid Proposal Form for information concerning order of acceptance of alternates.
- H. All labor, material, equipment, accessories, and incidental items required for a complete installation shall be included, whether or not specifically mentioned as part of the Alternate. Contractor shall perform necessary modifications or adjustments to affected adjacent work, whether new or existing, in order to fully and properly integrate the Alternate work into the Project. These necessary modifications and adjustments shall be included in the Alternate
- 1.03 QUALITY ASSURANCE:
  - A. The Base Bid specifications shall govern work of Alternates unless otherwise noted.
- 1.04 GENERAL REQUIREMENTS FOR ALTERNATES:
  - A. Coordination:

- 1. Determine the full effect on the Work of implementing each Alternate, including coordination, modification or adjustment of portions of the Work. Contract Amount included on the Bid Form for each Alternate includes the cost for all work required to incorporate the Alternate.
- 2. To enable Owner to compare total costs where alternative materials and methods might be used or where scope of Work might be altered, Bid Alternate Work items have been established as described in this Section.
- 3. Unless otherwise noted, Alternates will be accepted in the order listed until the Construction Budget is reached.
- B. Contract Amount included in Base Bid and as stated in executed Agreement shall include all costs for Work described in Contract Documents.
- C. Bid Proposal Form or other means prescribed for submission of proposed cost of Work shall include line items for each Alternate described in this Section. No Alternates other than as described in this Section shall be submitted, except in accordance with product options and substitutions provisions specified in Section 01 25 00, Substitution Procedures.
- D. Each Alternative is identified herein by number. This identification shall be used whenever referring to Work described in Alternate and when submitting cost proposals and payment requests.
- E. Alternative construction described in Alternates and revised scopes of Work shall be performed only when such Alternate is made a part of the Work by specific provision in the Owner-Contractor Agreement, if selected by Owner prior to execution of the Agreement, or by Change Order or Change Directive if selected subsequent to execution of the Agreement.
- F. Costs for Alternates shall be valid for no less than 120 calendar days from date of the Bid Opening and the Owner may select any or all Alternates during that time. Once an alternate is selected and the Contract modified for Work as described in the Alternate, changes to return to original scope of Work will be made only by Change Order or Change Directive in accordance with provisions of the Contract General Conditions for changes.

# PART 2 – PRODUCTS AND EXECUTION

# 2.01

- A. If the Owner elects to proceed on the basis of one or more of the described Alternates, Contractor shall make all modifications to Work as required to provide products complete, in place and fully functional, including all labor, equipment, services and incidental consumables necessary to apply, install and finish Work described in Alternate in accordance with requirements specified in related product Sections of these Specifications.
- B. Cost for Alternates shall be complete and include all net increases and decreases in Contract Amount for Work described in Alternate and for all changes in related Work. No claims for additional costs to the Owner will be honored other than as stated in cost proposal for each Alternate.

LTD Office Parking Lot Improvements

- 2.02 SCHEDULE OF PAVING ALTERNATE NO. 1:
  - A. Additive Alternate Bid No. 27
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Full Depth Sawcut
    - 3. Reference: NCTCOG 402.3
  - B. Additive Alternate Bid No. 28
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Remove Existing Concrete Curb and Gutter
    - 3. Reference: NCTCOG 203.1
  - C. Additive Alternate Bid No. 29
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Remove Existing Tree
    - 3. Reference: NCTCOG 203.1
  - D. Additive Alternate Bid No. 30
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Install 6" Lime Stabilized Subgrade
    - 3. Reference: NCTCOG 301.2
  - E. Deductive Alternate Bid No. 31
    - 1. Base Bid condition: Place Reinforced Concrete Street Pavement (7")
    - 2. Alternate Bid condition: Place Reinforced Concrete Street Pavement (7")
    - 3. Reference: NCTCOG 303
  - F. Deductive Alternate Bid No. 32
    - 1. Base Bid condition: Place Reinforced Concrete Street Pavement (6")
    - 2. Alternate Bid condition: Place Reinforced Concrete Street Pavement (6")
    - 3. Reference: NCTCOG 303
  - G. Deductive Alternate Bid No. 33
    - 1. Base Bid condition: Place Reinforced Concrete Sidewalk Pavement (4")
    - 2. Alternate Bid Condition: Place Reinforced Concrete Sidewalk Pavement (4")
    - 3. Reference: NCTCOG 303
  - H. Additive Alternate Bid No. 34
    - 1. Base Bid Condition: N/A
    - 2. Alternate Bid Condition: Place Reinforced Concrete Street Pavement (5")
    - 3. Reference: NCTCOG 303
  - I. Deductive Alternate Bid No. 35
    - 1. Base Bid Condition: Provide and Install 6" Concrete Curb
    - 2. Alternate Bid Condition: Provide and Install 6" Concrete Curb
    - 3. Reference: NCTCOG 303

- J. Deductive Alternate Bid No. 36
  - 1. Base Bid Condition: Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)
  - 2. Alternate Bid Condition: Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)
  - 3. Reference: TxDOT 666
- K. Deductive Alternate Bid No. 37
  - 1. Base Bid Condition: Provide and Install ADA Striping (Hot Applied Thermoplastic)
  - 2. Alternate Bid Condition: Provide and Install ADA Striping (Hot Applied Thermoplastic)
  - 3. Reference: NCTCOG TxDOT 666
- L. Deductive Alternate Bid No. 38
  - 1. Base Bid Condition: Connect to Existing Concrete Pavement
  - 2. Alternate Bid Condition: Connect to Existing Concrete Pavement
  - 3. Reference: NCTCOG 702
- M. Additive Alternate Bid No. 39
  - 1. Base Bid Condition: N/A
  - 2. Alternate Bid Condition: Install Canopy Column Foundation
  - 3. Reference: Sheet C-202
- N. Additive Alternate Bid No. 40
  - 1. Base Bid Condition: N/A
  - 2. Alternate Bid Condition: Provide, Install, and Remove Silt Fence
  - 3. Reference: NCTCOG 202.5
- 2.03 SCHEDULE OF PAVING ALTERNATE NO. 2:
  - A. Deductive Alternate Bid No. 41
    - 1. Base Bid condition: Install 6" Lime Stabilized Subgrade
    - 2. Alternate Bid condition: Install 6" Lime Stabilized Subgrade
    - 3. Reference: NCTCOG 301.2
  - B. Additive Alternate Bid No. 42
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Install 8" Lime Stabilized Subgrade
    - 3. Reference: NCTCOG 301.2
  - C. Deductive Alternate Bid No. 43
    - 1. Base Bid condition: Provide and Install Lime
    - 2. Alternate Bid condition: Provide and Install Lime
    - 3. Reference: NCTCOG 301.2
  - D. Additive Alternate Bid No. 44
    - 1. Base Bid condition: N/A
    - 2. Alternate Bid condition: Unclassified Excavation and Haul Off
    - 4. Reference: NCTCOG 203.4

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- E. Deductive Alternate Bid No. 45
  - 1. Base Bid condition: Place Reinforced Concrete Street Pavement (7")
  - 2. Alternate Bid condition: Place Reinforced Concrete Street Pavement (7")
  - 3. Reference: NCTCOG 303
- F. Deductive Alternate Bid No. 46
  - 1. Base Bid condition: Place Reinforced Concrete Street Pavement (6")
  - 2. Alternate Bid condition: Place Reinforced Concrete Street Pavement (6")
  - 3. Reference: NCTCOG 303
- G. Deductive Alternate Bid No. 47
  - 1. Base Bid condition: Place Reinforced Concrete Sidewalk Pavement (4")
  - 2. Alternate Bid condition: Place Reinforced Concrete Sidewalk Pavement (4")
  - 3. Reference: NCTCOG 303
- H. Additive Alternate Bid No. 48
  - 1. Base Bid condition: N/A
  - 2. Alternate Bid condition: Install 10" Crushed Stone Base Subgrade
  - 3. Reference: NCTCOG 302
- I. Additive Alternate Bid No. 49
  - 1. Base Bid condition: N/A
  - 2. Alternate Bid condition: Provide and Install 3" Asphalt Street Pavement
  - 3. Reference: NCTCOG 302
- J. Additive Alternate Bid No. 50
  - 1. Base Bid condition: Install 6" Concrete Curb
  - 2. Alternate Bid condition: Install 6" Concrete Curb
  - 3. Reference: NCTCOG 303
- K. Deductive Alternate Bid No. 51
  - 1. Base Bid condition: Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)
  - 2. Alternate Bid condition: Provide and Install 4" Solid White Stripe (Hot Applied Thermoplastic)
  - 3. Reference: TxDOT 666
- L. Deductive Alternate Bid No. 52
  - 1. Base Bid condition: Provide and Install ADA Striping (Hot Applied Thermoplastic)
  - 2. Alternate Bid condition: Provide and Install ADA Striping (Hot Applied Thermoplastic)
  - 3. Reference: TxDOT 666
- M. Deductive Alternate Bid No. 53
  - 1. Base Bid condition: Connect to Existing Concrete Pavement
  - 2. Alternate Bid condition: Connect to Existing Concrete Pavement
  - 3. Reference: NCTCOG 702

# SUBMITTALS

# PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. Articles and portions of articles of the Contract Documents not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.
- B. All Submittals, Shop Drawings, Data, Schedules, Certificates, Reports, and all other documents and formal correspondence will be required to be submitted in digital format through the Owner's selected Project Management Information System.
- 1.2 SECTION INCLUDES
  - A. Submittal Procedures
  - B. Schedules
  - C. Reports, Warranties, Certificates and Manuals
  - D. Schedule of Submittals
  - E. Construction Schedule

#### 1.3 SUBMITTAL PROCEDURES

- A. Identify long lead or specialty submittals (Pre-Fabricated Restroom Building, Pavilion, Floating Docks and site features, etc.) and submit within first 30 days of contract.
- B. Submit shop drawings and product data in the quantity as required by the various sections of the Specifications or if not specified, submit three copies for the use of the Landscape Architect/Engineer, plus the number of copies the contractor's needs may dictate. Documents shall be submitted through the Owner's selected Project Management Information System. All submittals, regardless of the source of origin, shall be submitted via the General Contractor.
- C. For each product specified or noted on the Drawings, submit digital copies of product data with installation directions as applicable to the construction requirements of this project, together with any required samples for approval. Shop drawings and product data shall be submitted within 30 days of Notice to Proceed. Documents shall be submitted through the Owner's selected Project Management Information System.
- D. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- E. Apply Contractor's stamp, signed or initialed certifying that review for verification of product required, field dimensions, adjacent construction Work and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- F. Provide space for Contractor and Architect/Engineer review stamps.
- G. Revise and resubmit submittals as required; identify all changes made since previous submittal.

- H. Submittals shall be executed in sufficient time to allow at least three weeks for each review by the Architect/Engineer.
- I. Each product submitted shall be submitted with it's own transmittal form, stating the product name, manufacturer and related specification section. Number each submittal consequently in order of submission (1, 2, 3, etc.), also reference the Project Manual specification number for the submittal identity. (example: 07270- 1 for the first submittal for Firestopping and 07270-2 for the second item submitted under the same section). Revised submittals should have original number and a sequential alphabetic suffix. (example: 1A for a revised submittal).

# 1.4 SCHEDULES

- A. The following schedules must be prepared and submitted to the Architect/Engineer for approval within twenty (20) calendar days (unless noted otherwise) after date of Owner-Contractor Agreement. Failure to submit any of the following items to the Architect/Engineer within the time allotted shall be grounds for withholding Contractor's Certificate for Payment.
  - 1. List of Subcontractors and Suppliers, including category of work, contact name, address, and telephone number.
  - 2. Construction Schedule. Refer to Paragraph 1.7 below.
  - 3. Schedule of Values. Refer to Section 01020, Paragraph 1.4.
  - 4. Cash flow schedule of anticipated amount of monthly estimates.
  - 5. Schedule of Submittals.
  - 6. Requests for Substitutions: Submit within 30 days, in accordance with Section 01600, Paragraph 1.5.
  - 7. Schedule of Operation and Maintenance Data for Manuals. Refer to Section 01700, Paragraph 1.7.

# 1.5 REPORTS, WARRANTIES, CERTIFICATES AND MANUALS

- A. Warranties:
  - 1. On all materials for a period of one year or as per the maintenance bond and as required by various specification sections.
  - 2. Warranty on all pre-fabricated products and structures.
- B. Special warranties in conjunction with mechanical equipment.
- C. Test reports and certificates in conjunction with electrical equipment.
- D. Operation and Maintenance Manuals. Refer to Section 01700, Paragraph 1.7.
- E. Concrete Design and Test Reports:
  - 1. In conjunction with concrete paving.
  - 2. In conjunction with structural concrete.

# 1.6 SCHEDULE OF SUBMITTALS

- A. Provide list of all items requiring shop drawings, product data or samples.
- B. Organize list by specification sections, and provide exact break down of phased portions of work.
- C. Provide proposed date for each initial submittal. Allow sufficient time as may be required for resubmittals.
- 1.7 CONSTRUCTION SCHEDULE

- A. The Construction Schedule shall be prepared in the form of a bar graph, identifying the first work day of each week and provide dates for completion of phases in the various categories of the work.
- B. Revise and resubmit as required. Submit revised schedule with each Application for Payment.
- C. The purpose of the Construction Schedule shall be to allow the Owner and Architect/Engineer to evaluate the Contractor's performance and adherence to the schedule on a monthly basis along with the Contractor's Application for Payment.
- D. Liquidated Damages will be paid by the Contractor to the Owner at a rate specified in the Agreement Between the Owner and Contractor Form for each and every calendar day that actual Substantial Completion exceeds the time for Substantial Completion authorized under the terms of this Contract.

# SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

# PART 1 - GENERAL

# 1.1 REQUIREMENTS INCLUDED

A. Submit to the Architect/Engineer shop drawings, product data, and samples required by specification sections.

#### 1.2 SHOP DRAWINGS

- A. Prepared by a qualified detailer.
- B. Identify details by reference to sheet and detail numbers shown on Contract Documents.
- C. Shop Drawings shall be submitted <u>only</u> to clarify, amplify, or revise information shown or called for in the contract documents.

#### 1.3 PRODUCT DATA

- A. Manufacturer's standard schematic drawings and diagrams:
  - 1. Modify drawings to delete information which is not applicable to the work.
  - 2. Supplement standard information to provide additional information specifically applicable to the work.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data:
  - 1. Clearly mark each copy to identify pertinent materials, products or models.
  - 2. Show dimensions and clearances required.
  - 3. Show performance characteristics and capacities.
  - 4. Show wiring or piping diagrams and controls.

#### 1.4 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics of product or material, with integrally related parts and attachment devices.
  - 2. Full range of color samples.
- B. Field Samples and Mock-ups:
  - 1. Erect at project site at location acceptable to Architect/Engineer.
  - 2. Construct each sample or mock-up complete, including work of all trades required in finish work.

# 1.5 SUBMISSION REQUIREMENTS

- A. Submit shop drawing and product data as soon as practicable after award of contract but not later than 30 days before dates reviewed submittals will be needed.
- B. Submit all office samples as soon as practicable but not later than 30 days after award of contract in order to facilitate color selections and coordination of the various materials. Final color selections and release of shop drawings contingent upon color selection will not be made until all office samples have been submitted, coordinated, and approved.

- C. Number of submittals required:
  - 1. Shop Drawings: Submit digital copies through the Owner's selected Project Management Information System.
  - 2. Product Data: Submit digital copies through the Owner's selected Project Management Information System.
  - 3. Samples: Submit the number stated in each specification section, minimum of three samples for each item.
- D. Each submittal print shall include a cover sheet with sequential submittal number and:
  - 1. Date and revision dates.
  - 2. Project title and number.
  - 3. Names of Contractor, subcontractor, supplier, and manufacturer.
  - 4. Identification of product or material and specification section number.
  - 5. Relation to adjacent structure, materials or other critical features.
  - 6. Field dimensions clearly identified as such.
  - 7. Applicable reference standards.
  - 8. A blank space 4" x 8" for Architect/Engineer's stamp (on cover sheet).
  - 9. Other pertinent data required by specifications.
  - 10. Identification of variation from contract documents.
  - 11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements, compliance with contract documents, and coordination with requirements of the work.

Note: Absence of the Contractor's stamp shall constitute grounds for rejection of the submittal until such time as the submittal has been processed in accordance with this requirement. DO NOT FOLD SUBMITTALS TO EXPOSE STAMPS ON BACK OF PAGES. STAMPS TO BE ON COVER PAGE(S).

#### 1.6 RESUBMISSION REQUIREMENTS

- A. Resubmission: Make corrections and changes in submittals required by Architect/Engineer and resubmit until approved.
- B. Shop Drawings:
  - 1. Revise initial drawings and resubmit as specified for initial submittal.
  - 2. Indicate on drawings any changes which have been made, other than those requested by Architect/Engineer.
- C. Product Data and Samples: Submit new data and samples as specified for initial submittal.

# 1.7 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute reviewed copies of shop drawings and product data which carry Architect/Engineer's stamp as follows:
  - 1. Job Site File.
  - 2. Record Documents File.
  - 3. Other affected contractors.
  - 4. Subcontractors.
  - 5. Supplier or Fabricator.

#### TESTING LABORATORY SERVICES

# PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Articles and portions of articles of the Contract Documents not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.

# 1.2 SECTION INCLUDES

- A. Cooperate with the Owner's selected testing agency and any others responsible for testing and inspecting work.
- B. Provide such other testing and inspecting as are specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
- C. Where no testing requirements are described, but the Owner decides, that testing is required, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made using funds from the Testing Allowance as described in the Bid Form and Pay Item Descriptions.

# 1.3 PAYMENT FOR TESTING

- A. Initial Testing: The Contractor shall contract with a pre-approved testing agency for all initial services of the testing laboratory as required by the Contract Documents and testing as the Owner deems necessary. Payment for initial testing will be paid through the Testing Allowance.
- B. Retesting: When initial testing indicates non-compliance with the Contract Documents, subsequent retesting required by the non-compliance shall be performed by the same testing agency, and costs thereof will be paid directly by the Contractor, at no additional cost to the Owner.

# 1.4 LABORATORY DUTIES

- A. Cooperate with Architect/Engineer and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing:
  - 1. Comply with specified standards.
  - 2. Ascertain compliance of materials and work procedures with requirements of Contract Documents.
- C. Promptly notify Architect/Engineer and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit written report of each test and inspection; digital copies shall be submitted through the Owner's selected Project Management Information System. Each report shall include:
  - 1. Date issued.
  - 2. Project title and number
  - 3. Testing laboratory name, address and telephone number.
  - 4. Name and signature of laboratory inspector.
  - 5. Date and time of sampling or inspection.
  - 6. Record of temperature and weather conditions.

- 7. Date of test.
- 8. Identification of product and specification section.
- 9. Location of sample or test in the Project.
- 10. Type of inspection or test.
- 11. Interpretation of test results, when requested by Architect/Engineer.
- E. Perform additional tests as required by Architect/Engineer of the Owner.

#### 1.5 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.
  - 4. Stop the Work.

# 1.6 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to Work.
- B. Furnish copies of Products tests reports as required.
- C. Furnish incidental labor and facilities:
  - 1. To provide access to Work to be tested.
  - 2. To obtain and handle samples at the Project site.
  - 3. To facilitate inspections and tests.
  - 4. For storage and curing of test samples.
- D. Notify Architect/Engineer and Laboratory 48 hours prior to expected time for operations requiring inspection and testing services.
- E. Payment for all retesting required because of non-conforming work of materials.

# 1.7 SCHEDULE OF INSPECTIONS AND TESTS

- A. Section 02200 Earthwork (refer to Specifications)
  - 1. Tests and analysis of fill material will be performed in accordance with ANSI/ASTM D698.
  - 2. Frequency of Tests: Field density tests should be taken as each lift of fill material is placed. As a guide, one field density test per lift for each 5,000 square feet of compacted area is recommended. For small areas or critical areas the frequency of testing may need to be increased to one test per 2,500 square feet. A minimum of two tests per lift should be required.
- B. Section 032100 Concrete Reinforcement
  - 1. Prior to each concrete pour, inspect reinforcing sizes, bending of bars, quantities, spacing, placement, clearance of reinforcing from forms and tying in accordance with the Contract Documents and ACI 315.
  - 2. Inspect support and securing of reinforcement.
  - 3. Inspect condition of reinforcing.
  - 4. Prior to each concrete pour, inspect positioning of steel inserts and assemblies, sizes and spacing of reinforcement and inspect fusion-welded anchors and sheer connectors.

# C. Section 033000 - Cast-In-Place Concrete

- 1. Sample Cylinders: During the progress of the work, test cylinders shall be made from each different mix. Four compression test cylinders will be taken during the pour for every pour of 100 cubic yards or part thereof. One tested at 7 days, two tested at 28 days, and one retained in reserve for further testing.
- 2. Make a slump test in accordance with ASTM C-143 slump shall be a minimum of 4 inches to a maximum of 6 inches for each 60 cubic yards, or portion thereof, of concrete placed.
- 3. If tests of concrete do not meet the specified strength, coring shall be required. All coring shall be at the Contractor's expense.
- 4. Testing and coring shall be in compliance with ACI, Section 301.
- 5. Mix design: The Contractor shall submit a concrete mix design for approval.

#### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

# PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

A. Articles and portions of articles of the General Conditions and Supplementary Conditions not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.

#### 1.2 SECTION INCLUDES

- A. Security
- B. Protection of Completed Work
- C. Water Control
- D. Use of Site
- E. Temporary Controls
- F. Project Identification and Signs
- G. Field Offices and Sheds
- H. Removal of Utilities
- I. Fire Protection
- J. Protection of Trees and Vegetation
- K. Traffic Control
- L. Temporary Fencing

# 1.3 SECURITY

A. A night watchman is not a requirement. However, protection of the property at all times is the responsibility of the Contractor, as well as replacement of any loss due to thieves or damage by vandals.

#### 1.4 PROTECTION OF COMPLETED WORK -DAMAGED ITEMS

- A. The Contractor shall be fully responsible for the protection of all items, finishes, etc., from the time they are delivered to or installed in the Work, until finished work is turned over to the Owner. Whenever such items, finishes, etc., are damaged, they shall be completely replaced, including all required removal work, patching, repairing, refinishing, and reinstallation as required to turn item over to Owner in new condition.
- 1.5 WATER CONTROL

A. Provide pumps, piping, fittings, hose, trenching, sumps, etc., as required to control and remove surface and subsurface water from excavation and the site. Dispose of water in accordance with E.P.A. storm water management for construction activities #482N.

# 1.6 USE OF SITE

- A. The Contractor will be responsible for protection of the Owner's property, including all adjacent structures, trees and shrubs.
- B. Temporary toilets may be located in the construction area.
- C. Prior to construction, inspect all areas of the site to be used including adjacent landscaping and irrigation, etc and prepare a photographic record of the conditions. As a part of the Work of this contract the site will be restored to its previous condition. All damages in the proximity of the construction area, not represented by the photographic survey shall be repaired to "like new condition."

#### 1.7 TEMPORARY CONTROLS

- A. Temporary Services and Utilities:
  - 1. Contractor shall pay for electrical utilities and water for the project during the construction period. Contractor to arrange and pay for all other services and utilities required and all deposits therefore, including but not limited to telephone, service, during the construction period.
  - 2. Provide and maintain in a neat and sanitary condition such toilet accommodations for use of employees as may be necessary to comply with requirements and regulations of the The Sabine River Authority and State Department of Health, or other "authorities" having jurisdiction. Permanent toilets within adjacent buildings shall not be used by employees. Maintain temporary toilet facilities on the site until final acceptance of Work, unless permission is given by the Architect/Engineer for earlier removal.
- B. Temporary Hoists: The General Contractor shall furnish, install and operate all temporary hoists as his needs may require; shall erect temporary stairs as may be required for his operations and shall erect and maintain suitable handrails and toeboards around all openings in floors and roofs and wherever else required for proper safety precautions. All of the foregoing requirements of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America.

#### 1.8 PROJECT IDENTIFICATION AND SIGNS

- A. No signs or advertising of any kind will be permitted without the approval of the Owner.
- B. Project signs or other signs or advertising of any kind will not be permitted.

# 1.9 FIELD OFFICES AND SHEDS

A. Provide a suitable office with telephone, data/internet and fax throughout construction. Keep an approved set of Drawings and Project Manual, including revisions, approved shop drawings, and samples on job at all times.

# 1.10 REMOVAL OF UTILITIES

A. Should active piping or conduit be encountered below grade within the construction site and be found at variance with the known conditions indicated by the Drawings and Specifications,

relocate piping or conduit as directed by the Architect/Engineer. Provide temporary support of active piping and conduit encountered in the excavations until permanent support or removed is accomplished. Cut off, and cap or plug abandoned lines at least 3 feet outside the building lines. In all cases, conform to the applicable requirements of the locality or governing agency.

# 1.11 FIRE PROTECTION

- A. All contractors and subcontractors shall observe, and the General Contractor shall enforce throughout the work, during the whole period of construction all requirements of the SRA, State and Insurance Authorities, to minimize the fire hazards during the progress of the work. In addition, the General Contractor shall post signs and warnings and ensure the following requirements are met:
  - 1. Combustible refuse shall be removed from the building daily.
  - 2. Storage of materials inside the building shall be restricted to fireproof areas with nosmoking signs posted.
  - 3. No oils, gasoline or other volatile liquids shall be stored inside the building.
  - 4. No bitumen kettles shall be operated inside the building.
  - 5. Space heaters and other types of heaters shall be set on incombustible flooring only. Building refuse shall not be burned in salamanders. Heaters shall not be placed closer than 15 feet to any combustible hanging or eight feet to a combustible partition or ceiling.
  - 6. Tarpaulins shall be flame proofed and when in use, securely braced and tied.
  - 7. Provide metal canisters with covers for storage of paint contaminated and oil waste materials.
  - 8. During all welding operations, a safety man with a fire extinguisher shall be on hand at all times to control any fire that may result from welding operations.
  - 9. The General Contractor shall provide fire extinguishers within 75 feet of any point of the area under construction. In addition, the General Contractor shall also provide one fire extinguisher outside each paint storage room and every other storage room where combustible materials are stored and in each field office.
  - 10. Burning of trash and excess materials on the premises is prohibited. No fires, including roofer's kettles, will be permitted within 40 feet of the buildings, sheds, shrubs or other material subject to fire, heat or smoke damage. The Contractor shall be solely responsible for any loss resulting from any fires.

#### 1.12 PROTECTION OF TREES AND VEGETATION

- A. The Contractor shall be fully responsible for the protection of all trees and vegetation to remain and/or not in the footprint of the designed facility. The Contractor's failure to comply with the following will cause for the Owner to shut the project down at the Contractor's expense:
  - 1. Contractor will be required to install (and maintain throughout construction) protective fencing at least 10' outside the drip line of all trees to remain.
  - 2. Parking vehicles under trees will not be permitted. The Contractor will be fined \$100.00 for each violation, which will be deducted from the contract amount by Change Order.
  - 3. All branches that interfere with construction activity shall be temporarily tied back to prevent damage. Branch removal is permitted only as approved by the Architect/Engineer.
  - 4. Tree damage will be assessed from the International Shade Tree Conference formula, D (diameter of tree measured 12" above ground) x 0.7854 x \$36.00. Total damages will be deducted from the contract amount by Change Order.
  - 5. Trenching for utilities in wooded areas must be staked and approved by Owner prior to construction. The Owner reserves the right to adjust line locations to avoid damage to existing trees.
  - 6. Where plans call for disturbance of the root system of existing trees, roots must be pruned (by machine manufactured for that purpose) prior to any other construction activity.

Immediately after excavation, exposed roots must be immediately covered with a finely shredded mulch and kept moist until backfilling is complete.

# 1.13 TEMPORARY FENCING

A. The Contractor shall be fully responsible for providing and maintaining temporary fencing and gates at the project site, with minimum 6' high chain link fencing. Fencing shall be 'breakaway' fencing when placed within floodplain areas, as required by The Sabine River Authority. Fencing shall be secured with gravel bags and base plates and/or temporary staking. Reference Temporary Fence Details.

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# TEMPORARY TREE AND PLANT PROTECTION

# PART 1 – GENERAL

# 1.01 RELATED DOCUMENTS

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

# 1.02 SUMMARY

- A. Tree preservation work includes, but is not limited to:
  - 1. Protection of existing trees and all other indicated to remain in place.
  - 2. Maintenance of protected areas.
  - 3. Clearing and grubbing activity within protected areas.
  - 4. Damage compensation.

#### 1.02 APPLICABLE REGULATIONS

A. Comply with all applicable local laws and regulations concerning tree preservation as well as the specific requirements stated elsewhere in the Specifications.

# PART 2 - PRODUCTS (NOT USED)

# **PART 3 - EXECUTION**

#### 3.01 PROTECTION OF EXISTING TREES TO REMAIN

- A. Tagging and Fencing
  - 1. Trees to remain shall be tagged and protective fencing installed prior to any construction, demolition, or other disturbance.
  - 2. Protective fencing shall be installed at the dripline of the tree to be protected unless otherwise noted on the Plans.
  - 3. The area inside the protective fencing will heretofore be referred to as the protected area.
  - 4. The Contractor shall verify tagged trees and fence locations in field with the Landscape Architect prior to any construction or demolition activity.

# 3.02 MAINTENANCE OF PROTECTED AREA

- A. No construction activity shall occur inside protected areas other than that landscape construction which is required for completion of the project.
  - 1. Construction activity includes, but is not limited to, building material storage, waste stockpiling, topsoil stockpiling, equipment storage or parking, disposal of waste materials of any kind, draining or flushing of tanks, canisters, drums, or other containers, trailer parking or storage, and demolition activity.
- B. No traffic, vehicular or pedestrian, shall encroach upon protected areas.
  - 1. This includes, but is not limited to, personal passenger vehicles, construction vehicles, grading machinery, and loading/lifting machinery.
- C. No material, machine, vehicle, or part thereof shall encroach above or below the vertical plane of the protective fencing into the protected area.
- D. The Contractor shall notify the Landscape Architect of any activity which might infringe or encroach upon the protected area prior to start of said activity.

# 3.03 ENCROACHMENT UPON PROTECTED AREA

A. If encroachment into the protected area does occur, notify the Landscape Architect immediately.

# 3.04 ACTIVITY INSIDE PROTECTED AREAS END OF SECTION

- A. Clearing and Grubbing:
  - 1. Clearing of small trees, shrubs, and herbaceous plants in the protected area shall be performed by hand only.
  - 2. Bulldozers and/or drag chain operations are not permissible inside protected areas.
  - 3. Grubbing of stumps shall be performed in two (2) ways:
    - a. Under 6" diameter shall be pulled by chain.
      - 1. The vehicle used for pulling shall remain outside the protected area (dripline of the tree to remain) whenever possible.
      - 2. Under no circumstance shall the pulling vehicle encroach into the protected area by more than 1/3 of the distance from the trunk of tree to remain to the nearest edge of the protected area (dripline).
      - 3. Any depressions shall be filled with topsoil and leveled to grade by hand.
    - b. Stumps over 6" diameter shall be ground out to a depth of 4" below grade.
      - 1. Stump grinder shall be trailer mounted and maneuvered by light truck or bobcat.

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- 2. Wood chips generated by grinding shall be removed and any depressions shall be filled with topsoil and leveled to grade.
- 3. These operations shall be performed by hand.
- B. Grading:
  - 1. Any grading which may be required inside the protected area shall be performed by hand only.
  - 2. No grading or earthmoving machinery shall be allowed inside the protected area.
  - 3. Provide grade stakes and verify grade elevations with the Landscape Architect prior to commencement of any grading activity.
- C. Preparation of soil for seeding and/or sodding within the protected areas shall be done by hand or with a power rake and shall not disturb soil more than 2" deep to prevent damage to feeder root systems.
  - 1. Chemical herbicides shall be used within protected areas unless the Contractor can obtain written manufacturer's guarantee that herbicide will not harm tree health or growth and obtain written approval from the Landscape Architect.
  - 2. Contact the Landscape Architect prior to seed or sod preparation within protected areas to determine exact seed and/or sod limits.
- D. Stake locations of all utilities which encroach protected areas.
  - 1. Contact the Landscape Architect prior to clearing or trenching for utilities to verify that staked location is the least obtrusive to protected area.

# 3.05 REMOVAL OF PROTECTIVE FENCING

- A. Protective fencing may be removed to facilitate landscape work in the protected area.
  - 1. All Work in the protected area shall be initiated within 24 hours of fence removal.
  - 2. If landscape work in the protected area is delayed or interrupted for more than 24 hours, then protective fencing shall be reinstalled until such time as work in the protected area is resumed.
  - 3. Protective fencing shall be reinstalled after substantial completion of work inside protected area and shall remain until substantial completion of the project or approval of the Landscape Architect, whichever is later.

# 3.06 DAMAGE COMPENSATION

- A. Any damage occurring to trees to remain or protected areas or removal of trees to remain in the protected areas caused by neglect, unauthorized encroachment and/or inadequate protection enforcement as
  - 1. Financial Compensation for said damage or removal shall be determined by the Landscape Architect and Owner as per the following guidelines on a per occurrence basis.

# MATERIALS AND EQUIPMENT

# PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

A. Articles and portions of articles of the General Conditions and Supplementary Conditions not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.

#### 1.2 SECTION INCLUDES

- A. Products
- B. Transportation and Handling, Storage and Protection
- C. Substitutions
- D. Manufacturer's Directions
- E. Color Schedule

#### 1.3 PRODUCTS

A. Products include new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

# 1.4 TRANSPORTATION AND HANDLING

- A. Transport, handle, store and protect Products in accordance with manufacturer's instructions.
- B. Materials shall be new, delivered and stored in authorized locations in unopened containers and in ample quantity to prevent delay. Ordering of materials shall be made well in advance so as not to hinder the progress of work. Grade marks, labels, etc. shall be kept readable.

# 1.5 SUBSTITUTIONS

- A. The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.
- B. The details on the Drawings and the requirements of the Specifications shall be based on the first listed materials, products or equipment in the Contract Documents. All other products will be considered substitutions. If the Contractor desires to use any of the other listed materials, products or equipment other than that listed first or if the Contractor substitutes a material, product or equipment, the Contractor alone shall be responsible for the correct function, operation and accommodation of the other materials, products or equipment into the spaces allotted on the Drawings.
- C. The "listing" of a manufacturer does not imply "acceptance" or "approval" of any standard product of that manufacturer.
- D. Limitations of Substitutions:

- 1. Substitutions will not be considered when indicated or implied on shop drawings or product data submittals by subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
- 2. Substitute product shall not be ordered or installed without written acceptance.
- 3. Only one request for substitution for each product will be considered. If substitution is not accepted, Contractor shall provide specified product.
- 4. Architect/Engineer will determine acceptability of substitutions and the Architect/Engineer's decision of approval or disapproval of a requested substitution shall be final.
- E. Whenever, in any of the Contract Documents, any material, product or equipment is defined through the use of any federal association or other standard specification, the Contractor shall present satisfactory evidence of compliance with the particular specification for the material, product or equipment he proposes to furnish.
- F. Request for Substitution Submittal Procedures:
  - 1. No substitution will be considered unless three copies are submitted on General Contractor's Request for Substitution Form (see Section 01630-3 and 01630-4).
  - 2. Request for Substitution during the bidding period:
    - a. Substitutions shall be submitted to the Architect/Engineer at least seven days prior to the date for receipt of bids by the General Contractor.
    - b. If the Architect/Engineer approves a proposed substitution prior to receipt of bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
  - 3. Request for Substitution after award of contract:
    - a. Substitutions shall be submitted to the Architect/Engineer within at least 30 (thirty) calendar days after the award of contract. No substitutions will be considered after that time and the Contractor must provide the specified product.

# 1.6 MANUFACTURER'S DIRECTIONS

A. All manufactured articles, material, appliance and equipment shall be delivered, stored, applied, installed, connected, erected, used, cleaned, conditioned and placed in operation, as directed by the respective manufacturers, insofar as these directions are applicable to this particular project and are not in conflict with superior requirements in the Specifications or requirements of applicable Building Codes.

# SUBSTITUTIONS AND PRODUCT OPTIONS

#### PART 1 - GENERAL

#### 1.1 REQUIREMENTS INCLUDED

A. Furnish and install products specified, under conditions for options and substitutions stated in this Section.

#### 1.2 PRODUCTS LIST

- A. Within 30 days after award of Contract, submit to Architect/Engineer a complete list of major Products which are proposed for installation.
- B. Tabulate Products by Specification Section number and title.
- C. For products specified only by reference standards, list for each such Product:
  - 1. Name and address of manufacturer.
  - 2. Trade name.
  - 3. Model or catalogue designation.
  - 4. Manufacturer's data:
    - a. Reference standards.
    - b. Performance test data.

# 1.3 CONTRACTOR'S OPTIONS

- A. For Products specified only by reference standard, select Product meeting that standard, by any manufacturer.
- B. For Products specified by naming several Products or manufacturers, select anyone of products and manufacturers named which complies with Specifications.
- C. For Products specified by naming only one Product and manufacturer, there is no option and no substitution will be allowed (unless substitution is approved prior to bid opening).

# 1.4 SUBSTITUTION PROCEDURE

- A. Prior to the Bid Date: Architect/Engineer will consider substitutions as specified in the Instructions to Bidders, General Conditions and Section 01600 of the Technical Specifications.
- B. After the Bid Date: Architect/Engineer will consider formal written requests from Contractor for substitution of products in place of those specified only when submitted in accordance with the requirements of this Section. One or more of the following conditions must be documented.
  - 1. The substitution must be required for compliance with final interpretation of code requirements or insurance regulations.
  - 2. The substitution must be due to the unavailability of the specified products, through no fault of the Contractor. Long delivery period will not qualify as unavailability.
  - 3. The substitution may be requested when subsequent information discloses the inability of the specified products to perform properly or to fit in the designated space.
  - 4. The substitution may be due to the manufacturer's or fabricator's refusal to certify or guarantee performance of the specified product as required.
  - 5. The substitution may be requested when it is clearly seen, in the judgement of the Architect/Engineer that a substitution would be substantially to the Owner's best interests in terms of cost, time or other considerations.

- C. Submit a separate request for each substitution on a copy of the request form attached to this section. Support each request with:
  - 1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
    - a. Product identification, including manufacturer's name and address.
    - b. Manufacturer's literature;
    - c. Samples, as applicable.
    - d. Name and address of similar projects on which product has been used, and date of each installation.
  - 2. Itemized comparison of the proposed substitution with product specified; list significant variations.
  - 3. Data relating to changes in construction schedule.
  - 4. Any effect of substitution on separate contracts.
  - 5. List of changes required in other work or Products.
  - 6. Accurate cost data comparing proposed substitution with product specified.
    - a. Amount of any net change to Contract Sum.
  - 7. Designation of required license fees or royalties.
  - 8. Designation of availability of maintenance services, sources of replacement materials.
- D. Substitutions will not be considered for acceptance when:
  - 1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
  - 2. They are requested directly by a subcontractor or supplier.
  - 3. Acceptance will require substantial revision of Contract Documents.
- E. Substitute products shall not be ordered or installed without written acceptance of Architect/Engineer and Owner.
- F. Architect/Engineer and Owner will determine acceptability of proposed substitutions.
- 1.5 CONTRACTOR'S REPRESENTATION
  - A. In making formal request for substitution Contractor represents that:
    - 1. He has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
    - 2. He will provide same warranties or bonds for substitution as for product specified.
    - 3. He will coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
    - 4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
    - 5. Cost data is complete and includes related costs under his Contract, but not:
      - a. Costs under separate contracts.
      - b. Architect/Engineer's costs for redesign or revision of Contract Documents.
    - 6. He will reimburse the Owner separately for fees paid to the Architect/Engineer for redesign, revision of Contract Documents, and review of each substitution request.

# 1.6 ARCHITECT/ENGINEER'S DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor, in writing, of decision to accept or reject requested substitution.

END OF SECTION 01630 - See Attached General Contractor's Request for Substitution

Request No.	Date
Project Name:	
Project Name:	
Contractor Name and Ad	dress:
Hereby requests approval	of the following product or system as an "approved substitution."
Specification Section No	Page(s)Paragraph
Drawing No (s)	Detail or Section No (s)
USE SEPARATE FORM	FOR EACH SUBMITTAL
Name and description of	submittal for substitutions.
Manufacturer:	
Manufacturer:Address:	Telephone:
Manufacturer: Address: Vendor:	Telephone:
Manufacturer: Address: Vendor: Address:	Telephone:Telephone:
Manufacturer: Address: Vendor: Address: Are maintenance services	Telephone: Telephone: and replacement parts available through vendor?
Manufacturer: Address: Vendor: Address: Are maintenance services Differences between prop	Telephone: Telephone: and replacement parts available through vendor? posed substitution and specified item?
Manufacturer: Address: Vendor: Address: Are maintenance services Differences between prop	Telephone: Telephone: and replacement parts available through vendor? posed substitution and specified item?
Manufacturer: Address: Vendor: Address: Are maintenance services Differences between prop  For finish materials and p substitution:	Telephone: Telephone: and replacement parts available through vendor? posed substitution and specified item? prefinished equipment, list the colors available for the proposed
Manufacturer: Address: Vendor: Address: Are maintenance services Differences between prop  For finish materials and p substitution: Manufacturer's guarantee	Telephone: Telephone: and replacement parts available through vendor? posed substitution and specified item? prefinished equipment, list the colors available for the proposed es of the proposed and specified items are:
Manufacturer: Address: Vendor: Address: Are maintenance services Differences between prop For finish materials and p substitution: Manufacturer's guarantee □ Same	Telephone:

# GENERAL CONTRACTOR'S REQUEST FOR SUBSTITUTION

Substitution affects other material or systems:  $\Box$  No  $\Box$  Yes (If yes, attach complete data.)

Enclosed data is (with specific marks related to substitution):

- □ Catalog □ Drawings □ Sample □ Tests □ Reports
- □ Other\_\_\_\_\_

List items or elements that are the same as the specified item.

Attach list of similar projects using the product attachment. Include Owner, and Owner's representative to contact.

State effects of substitution on construction schedule, and changes in other work or project.

What license fees or royalties are required?

The undersigned states that the function, appearance, quality and results are equivalent or superior to the specified items and that Substantial Completion will not be affected.

Submitted by:

Contractor's Signature

Firm

Address

Telephone

Date

Owner's Signature:

For the Design Professional			
<ul> <li>Accepted</li> <li>Not accepted</li> </ul>	<ul><li>Accepted as noted</li><li>Received late</li></ul>		
By:			
Date:			
Remarks:			

# PROJECT CLOSEOUT

# PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. Articles and portions of articles of the General Conditions and Supplementary Conditions not amended, supplemented or superseded by these General Requirements (Division 1) shall remain in effect.
- B. All closeout documents (Record Drawings, Operation and Maintenance Manuals and Warranties) shall be provided to the Owner in digital format, and submitted through the Owner's selected Project Management Information System.

#### 1.2 SECTION INCLUDES

- A. Substantial Completion
- B. Cleaning
- C. Record Drawings
- D. Operation and Maintenance Manuals
- E. Warranties
- F. Spare Parts and Maintenance Materials
- G. Letters of Compliance

# 1.3 SUBSTANTIAL COMPLETION

- A. After the Work has been cleaned and finished to a state of Substantial Completion, the Contractor shall prepare a list of items to be completed or corrected. The Contractor shall give the Architect/Engineer 10 days written notice of the date the Work, or a portion of the Work, will be ready for each inspection.
- B. First Inspection: Upon receipt of the list of items to be completed or corrected, if the Architect/Engineer agrees that the level of completeness meets the standards established, the Architect/Engineer will inspect the project for compliance with the Contract Documents. The Architect/Engineer shall verify and amend the Contractor's list. The Architect/Engineer will designate specific items on the list which must be completed or corrected before the Certificate of Substantial Completion will be issued.
- C. If, in the Architect/Engineer's opinion, the Contractor is not making the proper effort to complete or correct listed items, the Architect/Engineer may report same to the Owner who will have the option of engaging other contractors to complete the work of the project. Such contractors shall be employed as stipulated in the General Conditions.
- D. Second Inspection: When items have been corrected to meet Substantial Completion, the Contractor shall notify the Architect/Engineer to perform a second Substantial Completion inspection. If, in the opinion of the Owner and Architect/Engineer, the work has been performed in compliance with the Contract Documents, and if documents defined in this Section, and in Paragraph 9.10.1 of the General Requirements have been prepared and received by the Owner, the

Architect/Engineer will issue the Certificate of Substantial Completion with the remaining items to be completed or corrected for final acceptance on an attached list.

E. Items to be Completed or Corrected: The list of items attached to the Certificate of Substantial Completion is a guideline of items to be corrected for final acceptance. Items may be added to the list after the date of Substantial Completion as a guide of items to review at final inspection and as a record of the warranty date for those items.

# 1.4 CLEANING

- A. Execute cleaning prior substantial completion reviews and final inspections.
- B. Clean interior and exterior surfaces exposed to view.
- C. Clean debris from entire site, roofs, gutters, downspouts, and drainage systems.
- D. Clean or replace filters of operating equipment.
- E. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- F. The Contractor shall turn the work over in clean condition inside and outside (including the premises). Clean up shall include removal of smudges, marks, stains, fingerprints, soil, dirt, paint, dust, lint, unnecessary labels, discoloration's and other foreign materials. Clean all finished surfaces, such as (but not limited to) walks, drives, curbs, paving, fences, grounds, etc. Slick surfaces shall be left with a clear shine. Remove all temporary facilities and job sign, including surface materials and temporary roads and walkways.

# 1.5 RECORD DOCUMENTS

- A. The contractor shall provide to the Landscape Architect/Engineer complete record documents at the completion of the project which includes the drawings and project manual. The record documents shall be submitted in electronic format.
- B. The contractor shall acquire and pay for a set of prints of the drawings on heavy weight paper and one Project Manual with a laminated cover at the beginning of the project to be kept in a safe, neat environment at the site. The prints and project manual will be labeled with neat bold letters "Record Drawings Prints" and "Record Project Manual". The edges of the prints shall be protected with clear tape.
- C. During the course of performing the work, the contractor shall neatly record all changes to the Contract Documents on the "Record Drawing Prints" and "Record Manual", including but not limited to:
  - 1. All Addendum's issued by the Architect/Engineer.
  - 2. All Change Orders approved by the Owner.
  - 3. All Architect/Engineer's Supplemental Instructions issued by the Architect/Engineer.
  - 4. All answers issued by the Architect/Engineer in response to "Requests for Interpretation" issued by contractor that change any drawing or specification.
  - 5. All changes by the contractor of piping routings, duct layouts, electrical equipment placement, circuiting, etc. that deviate from locations shown on the Contract Documents, shall be carefully recorded. The contractor shall show and label all valves with the corresponding tag number.
  - 6. All underground utility locations shall be reviewed with the Architect/Engineer and consequently recorded on the "Record Drawing Prints".
- D. Prior to application for payment each month, the Architect/Engineer will review the "Record Drawing Prints" and "Project Manual" to verify that any changes during that pay period have been

properly recorded. The contractor shall keep a log on the cover sheet of the drawings and a log in the front of the Project Manual indicating which Addendum's, Change Orders, Supplemental Instructions, R.F.I.'s, etc. have been posted, the date they were posted, and by whom they were posted. Failure to record the changes that have occurred in that pay period will be grounds to withhold payment until they are recorded.

- E. As part of Project Close-out, the Record Documents, shall be scanned to PDF format, and submitted through the Owner's selected Project Management Information System for review and approval after substantial completion and prior to final payment.
- F. As part of Project Closeout, the "Record Documents shall be submitted for review after substantial completion and prior to final payment. The Landscape Architect/Engineer will compare the "Record Documents" to his own record set. The Landscape Architect/Engineer will return the "Record Documents" to the contractor who will promptly correct any deficiencies or discrepancies to the satisfaction of the Landscape Architect/Engineer. The contractor will then submit the final record drawings and record project manual in digital format through the Owner's selected Project Information System.
- G. Preparation of "Record Documents" is subsidiary to the project pay items. No separate pay will be provided for preparation of record document.

# 1.6 OPERATION AND MAINTENANCE MANUALS

- A. Furnish the Owner, through the Architect/Engineer, copies of operating instructions and maintenance recommendations for all work installed in the building, including that installed by General Contractor's own forces and all work done by subcontractors.
- B. Operating instructions and maintenance recommendations shall be furnished in a form approved by the Architect/Engineer and shall be neatly typewritten and complete, bound into Operations and Maintenance Manuals.
- C. These manuals shall be prepared and transmitted to the Architect/Engineer for approval so they can be given to the Owner no less than 10 days prior to Substantial Completion.
- D. The work covered by these manuals will not be inspected for Substantial Completion until Owner has received the manuals described above.

# 1.7 WARRANTIES

- A. Warranties and Certificates: Prior to the final payment, Contractor and subcontractors shall forward to the Architect/Engineer, copies of warranties and certificates as required by the Contract Documents.
- B. The Contractor and each subcontractor shall furnish written warranties, covering their respective work or equipment for a minimum period of two years from the date of acceptance, against defects of material or workmanship at no cost to the Owner. Some work may be specified to be covered under a longer period of warranty. All warranties shall be signed by the responsible Contractor and subcontractor.
- C. Wherever defects occur within the time limit of the warranty, if such unsatisfactory condition is due to the use of materials, or workmanship which are inferior, defective or not in accordance with the Contract, the Contractor, whenever notified, shall immediately:
  - 1. Place any such warranted work and/or materials in satisfactory condition.

- 2. Make good any work or materials, or the equipment or contents of said structures or grounds, which are damaged in fulfilling any such warranty at no cost to the Owner, and to the satisfaction of the Architect/Engineer.
- D. Should the Contractor fail to proceed promptly with the terms of this warranty the Owner may have such work performed as he may deem necessary to fulfill the warranty, charging the cost thereof against the Contractor.

# 1.8 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.

# **DIVISION 2 – SITEWORK**

# SITE PREPARATION/TREE PROTECTION FENCING

# PART 1 - GENERAL

- 1.1 SCOPE: Work in this section includes furnishing all labor, materials, equipment, and services required for clearing and grubbing, minor demolition, removal, and disposal of items as specified herein and on the plans.
- 1.2 RELATED WORK SPECIFIED ELSEWHERE:
  - A. Section 02200 Earthwork.
  - B. Existing Conditions, Removal and Demolition Items, and Grading Plan: Refer to plan sheets.

#### **PART 2 - PRODUCTS**

2.1 No products are required to execute this work, except as the Contractor may deem necessary.

# **PART 3 - EXECUTION**

- 3.1 CLEARING AND GRUBBING:
  - A. Clearing and grubbing shall consist of removing all natural and artificial objectionable materials from the project site or from limited areas of construction specified within the site.
  - B. In general, clearing and grubbing shall be performed in advance of grading and earthwork operations and shall be performed over the entire area of earthwork operations.
  - C. Unless otherwise specified on the plans, all trees and shrubs of three (3") inches caliper and less (caliper is the diameter as measured twelve (12") inches above the ground) and all scrub growth, such as cactus, yucca, vines, and shrub thickets, shall be cleared within the site's construction areas. All dead trees, logs, stumps, rubbish of any nature, and other surface debris shall also be cleared.
  - D. Buried material such as logs, stumps, roots of downed trees that are greater than one and one-half  $(1-1/2^{"})$  inches in diameters, matted roots, rubbish, and foreign debris shall be grubbed and removed to a minimum depth of twenty-four (24") inches below proposed finished grades.
  - E. Ground covers of weeds, grass, and other herbaceous vegetation shall be removed prior to stripping and stockpiling topsoil from areas of earthwork operations. Such removal shall be accomplished by "blading" off the uppermost layers of sod or root-matted soil for removal.

#### 3.2 TREES AND SHRUBS TO BE PRESERVED AND PROTECTED:

- A. Unless otherwise specified on the plans, trees and shrubs with calipers greater than three (3") inches shall not be cleared (removed) provided that both of the following conditions are met:
  - 1. The vegetation exists in an area that is not proposed for pavement, a structure, or the playing bounds of an athletic field.
  - 2. The vegetation is in an area where the cut or fill does not exceed six (6") inches.
- B. The Owner will assist the Contractor in identifying trees that are to be saved from clearing. The Contractor will protect such trees from construction damage such as trunk impacts and scrapes, limb breakage, compaction of soil within the drip line, and other injurious construction activities.

- 1. If necessary, the Owner may direct the Contractor, at the Contractor's expense, to erect protective stockades along the drip lines of trees that the Owner considers vulnerable to damage. Such stockades shall be of eight (8') foot long x six (6") inch diameter posts vertically buried three (3') feet deep at six (6') foot intervals along the drip line.
- C. Where grading or clearing and grubbing operations are to occur between trees that are to be preserved and protected, the Contractor will prune the lower branches of these trees as necessary to prevent their breakage and to permit access by construction machinery. Branches will be cut off to the trunk or major limb in a workmanlike manner. The Architect/Engineer may direct that the Contractor remove additional branches in such a manner that the tree presents a balanced appearance. Scars will be treated with a heavy coat of an approved tree sealant.

# 3.3 PAVEMENT REMOVAL:

- A. Bituminous and concrete pavements shall be removed to neatly sawed edges. Saw cuts shall be made to a minimum depth of one and one-half (1-1/2") inches. If a saw cut in concrete pavement falls within three (3') feet of an existing score joint, construction joint, saw joint, cold joint, expansion joint, or edge, the concrete shall be removed to that joint or edge. All saw cuts shall be parallel and/or perpendicular to the line of existing pavement. If an edge of a cut is damaged subsequent to saw cutting, the concrete shall again be sawed to a neat, straight line for the purpose of removing the damaged area.
- B. Concrete curb and gutter shall be removed as specified above. No section to be replaced shall be smaller than thirty (30") inches in length or width.
- 3.4 UTILITIES REMOVAL: In general, those utilities on the site that are to be removed or abandoned and that belong to the Owner shall be removed or abandoned by the Contractor. The Owner is responsible for arranging the relocation or removal of other utilities owned by utility companies or other parties.
- 3.5 MISCELLANEOUS DEMOLITION: There may be certain items on the site such as old building foundations, fences and other undetermined structures and improvements that must be removed before construction can commence. Unless otherwise specified, such items become the property of the Contractor for subsequent disposal.
- 3.6 USE OF EXPLOSIVES: The use of explosives will not be permitted in site preparation operations unless specifically permitted by the Owner in writing.
- 3.7 BACKFILLING: All holes, cavities, and depressions in the ground caused by site preparation operations will be backfilled and tamped to normal compaction and will be graded to prevent ponding of water and to promote drainage. In areas that are to be immediately excavated, the Architect/Engineer may permit holes, etc., to remain open.

# 3.8 DISPOSAL OF WASTE MATERIALS:

- A. Unless otherwise stated, materials generated by clearing, grubbing, removal, and demolition shall be known as "waste" or "spoils" and shall be removed from the site and disposed of by the Contractor. Similar materials may be unearthed or generated by earthwork operations or by the drilling of piers. Unless otherwise specified any merchantable items become the property of the Contractor.
- B. In certain cases, the Owner or Architect/Engineer may grant special permission for the Contractor to dispose of certain "wastes" or "spoils" by deep burial on the site. Such material would be buried in an approved area; would not be organic, biodegradable, or crushable; and would be buried in lifts or layers with soil thoroughly compacted around and over the material. A minimum of thirty (30") inches of cover would be required over the burial site.
## SECTION 02200

## EARTHWORK

# PART 1 - GENERAL

- 1.1 SCOPE: Work in this section includes furnishing all labor, materials, equipment, and services required to construct, shape, and finish earthwork to the required lines, grades, and cross sections as specified herein and on the plans.
- 1.2 RELATED WORK SPECIFIED ELSEWHERE:
  - A. Section 02100 Site Preparation.
  - B. Grading Plan: Refer to plan sheets.
- 1.3 TEST REPORTS: The Owner will bear the cost of all testing requirements (unless re-testing is required) and the Testing Laboratory will submit test reports from a commercial testing laboratory as specified herein and in the Conditions of the Contract.
- 1.4 METHOD OF PAYMENT: Earthwork is a necessary and incidental part of the work. The total cost will be included in the Bid Proposal. Payment will not be made on a unit price basis.

## **PART 2 - PRODUCTS**

- 2.1 UNCLASSIFIED EXCAVATION: Unclassified excavation shall consist of all excavation, unless separately designated, within the limits of the work. Unclassified excavation includes all material encountered regardless of its nature or the manner in which it is to be excavated.
- 2.2 UNCLASSIFIED FILL:
  - A. Unclassified fill shall consist of all fill within the limits of the work. All suitable native materials removed in unclassified excavation, or similar imported materials, shall be used insofar as practicable as unclassified fill. Properly deposited, conditioned, and compacted fill is hereinafter referred to as "earth embankment."
  - B. Rock: Minor quantities of rock not greater than four (4") inches in greatest dimension are permissible in fill materials used to construct earth embankment. Minor quantities of rock of greater dimensions may be placed in the deeper fills in accordance with the Texas Department of Transportation requirements for construction of rock embankments, provided such placement of rock is not immediately adjacent to structures or piers. Also, rock may be placed in the portions of embankments outside the limits of the completed graded width where the size of the rock prohibits their incorporation in the normal embankment layers.
- 2.3 TOPSOIL: Shall be as follows:
  - A. On-Site Topsoil: Topsoil shall consist of an average depth of six (6") inches of native surface soil left in place after the ground cover of herbaceous vegetation and other objectionable matter has been cleared by "blading," as specified in Section 02100, "Site Preparation." Topsoil may be greater or less than the upper six (6") inches in depth. However, it must be removable without contamination by the subsoil or substratum or other objectionable matter that would render it as "unsuitable material" as described herein.
  - B. Imported Topsoil: In the event there is not sufficient onsite topsoil, imported clean sandy loam topsoil will be imported so that the result is a full 6" deep of top soil in all planting areas. Submit a one (1) gallon sample and a pit analysis for approval.
- 2.4 IMPORTED FILL:

- A. Imported fill materials shall be used for the construction of earth embankment in the event that (1) the volume of unclassified excavation is less than the volume of fill required for earth embankment and/or (2) the condition of materials removed in unclassified excavation makes them unsuitable for use in the construction of earth embankment.
- B. The Contractor shall haul, and place imported fill obtained from off-site sources as necessary to construct the embankment and various other details of the construction plans. All costs related to such imported fill will be included in the contract price, and no additional or separate payment for imported fill will be due the Contractor.
- C. A sample of the proposed imported fill must be provided by the Contractor and be approved by the Architect/Engineer. In general, imported material must be equal to or better than native material in quality and engineering characteristics. The Architect/Engineer may also require the Contractor to provide a material analysis test of the proposed fill.

# 2.5 SELECT MATERIALS:

- A. Select materials shall be imported form off-site sources, unless they are available from specifically designated areas on the site as marked on the plans.
- B. Select Fill: The recommendations as called for in the "Geotechnical Investigation" shall be used for select fill. If none are provided in the "Geotechnical Investigation", the select fill shall be as follows: select fill shall be used for the construction of subgrades under building foundations, slabs on grade, and other concrete construction as shown and detailed on the plans. All select fill shall be sandy material or other suitable granular material (more than fifty (50%) percent by weight retained on a No. 200 sieve) and shall have a plasticity index not less than four (4) nor more than fifteen (15). Properly deposited, conditioned, and compacted select fill is hereinafter referred to as "select embankment."
- C. Testing Requirements:
  - 1. The Contractor shall have the testing lab to provide a material analysis test of a pit sample of select fill prior to hauling it to the site. This test will include the percentage by weight retained on a No. 200 sieve, the plasticity index, a physical description of the material, and the Standard AASHTO Density and optimum moisture content as required in the execution of "DENSITY CONTROL" in this specification. Tests performed on samples of fill material used for other projects are unacceptable.
  - 2. The Contractor shall have the testing lab to provide a maximum of four additional material analysis tests as described above for specimens chosen until after an entire lift of select fill material is hauled and deposited on the prepared subgrade, and all steps have been executed except for conditioning and compaction as required in the execution of "EARTH EMBANKMENT" and "SELECT EMBANKMENT" of this specification. The Owner or Architect/Engineer may call for a series of tests from the same lift or from any given lift of deposited material.

# 2.6 UNSUITABLE MATERIALS:

- A. Topsoil, select material, imported fill, or unclassified fill will be declared as "unsuitable" by the Owner if, in his opinion, any of the following conditions or matter and particles are present to a degree that is judged detrimental to the proposed use of the material.
  - 1. Moisture.
  - 2. Decayed or undecayed vegetation.
  - 3. Hardpan clay, heavy clay, or clay balls.
  - 4. Rubbish.

- 5. Construction rubble.
- 6. Sand or gravel.
- 7. Rocks, cobbles, or boulders.
- 8. Cementous matter.
- 9. Foreign matter of any kind.
- B. Unsuitable materials will be disposed of as "waste" as specified in Section 02100.
- C. Wet Material: If fill material is unsatisfactory for use as embankment solely because of high moisture content, the Architect/Engineer may grant the Contractor permission to process the material to reduce the moisture content to a usable optimum condition.

## **PART 3 - EXECUTION**

- 3.1 SITE PREPARATION: In general, "site preparation," as specified in Section 02100, shall be performed in advance of grading and earthwork operations and shall be completed over the entire area of earthwork operations.
- 3.2 TOPSOIL:
  - A. The removal and storage of topsoil shall occur after site preparation is complete and before excavation and embankment construction begin. Likewise, topsoil will be replaced after excavation and embankment construction are complete.
  - B. Removal: Topsoil shall be stripped to an average depth of six (6") inches from areas where excavation and embankment construction are planned. Topsoil may be obtained from greater depths if it is uncontaminated by the substratum and it is of good quality in the opinion of the Architect/Engineer.
  - C. Storage: Topsoil shall be stored in stockpiles conveniently located to areas that will later receive the topsoil. Stockpiles shall be out of the way of earthwork operations in locations approved by the Owner or Architect/Engineer. Stored topsoil shall be kept separate from other excavated materials and shall be protected from contamination by objectionable materials that would render it unsuitable.
  - D. Timing: Topsoil will not be replaced (deposited) until construction activities are complete that would create undesirable conditions in the topsoil, such as overcompaction or contamination. Trenching for items such as electrical conduit and irrigation pressure lines must be complete before topsoil replacement may begin.
  - E. Replacement: Topsoil will be deposited in a single layer or lift. It will be placed, processed, compacted, and graded to leave a finished layer of topsoil not less than five (5") inches in depth. Unless otherwise indicated, topsoil will be replaced over all areas of earthwork (including slopes), except where pavement is planned.
  - F. Grading: Topsoil will be final graded to the elevations shown on the plans. Unless otherwise indicated, the final plane of compacted topsoil will be between 0.10 foot and one (1") inch below adjacent paved surfaces. Fine grading will be accomplished with a weighted spike harrow, weighted drag, tractor box blade, light maintainer, or other acceptable machinery. Grading operations and equipment will be such that topsoil does not become overcompacted. Bulldozer blades and front-end loader buckets are not acceptable devices for topsoil grading operations.
  - G. Plant Bed Areas: Excavate to a depth of 12" to receive proposed soil mix.
  - H. Acceptability: Finished areas of topsoil are satisfactory if they are true to grade, true in plane, even in gradient (slope), uniform in surface texture, and of normal compaction. Areas of loose granular

pockets or of overcompacted soils are not acceptable and will be reworked. Finished areas will promote surface drainage and will be ready for turfgrass planting.

# 3.3 UNCLASSIFIED EXCAVATION:

- A. All excavated areas shall be maintained in a condition to assure proper drainage at all times, and ditches and sumps shall be constructed and maintained to avoid damage to the areas under construction.
- B. Surplus Material:
  - 1. Surplus excavation is that quantity of material that may be left over after the grading plan is executed, and all earthwork operations, including excavation, embankment construction, topsoil replacement, and final grading, are completed. Unless otherwise specified, the Contractor shall dispose of surplus material as "waste" as specified in Section 02100.
  - 2. In certain cases, if the on-site excavation and embankment quantities are not balanced and there is a surplus of excavated material, the Architect/Engineer may permit the Contractor to "waste" the surplus by constructing additional embankment in an approved location. No additional payment for such work would be due that Contractor.
- C. Excavation in Rock: The use of explosives will not be permitted unless specifically permitted in writing by the Owner. Unless otherwise indicated on the plans, excavation in solid rock shall extend six (6") inches below required subgrade elevation for the entire width of the area under construction and shall be backfilled with suitable materials as indicated on the plans.

## 3.4 EARTH EMBANKMENT:

- A. Earth embankment is defined as embankment composed of suitable materials removed in unclassified excavation and/or imported fill. The construction of embankment includes preparing the area on which fill is to be placed and the depositing, conditioning, and compaction of fill material.
- B. General: Except as otherwise required by the plans, all embankment shall be constructed in layers approximately parallel to the finished grade of the graded area, and each layer shall be so constructed as to provide a uniform slope as shown on the grading plan. Embankments shall be constructed to correspond to the general shape of the typical sections shown on the plans, and each section of the embankment shall correspond to the detailed section or slopes established by the drawings. After completion of the graded area, embankment shall be continuously maintained to its finished section and grade until the project is accepted.
- C. Preparation: Prior to placing any embankment, all preparatory operations will have been completed on the excavation sources and areas over which the embankment is to be placed. Stump holes or other small excavations in the limits of the embankments shall be backfilled with suitable material and thoroughly tamped by approved methods before commencing embankment construction. The surface of the ground, including plowed, loosened ground, or surfaces roughened by small washes or otherwise, shall be restored to approximately its original slope by blading or other methods, and, where indicated on the plans or required by the Architect/Engineer, the ground surface, thus prepared, shall be compacted by sprinkling and rolling.
- D. Scarification: The surface of all areas and slopes over which fill is to be placed, other than rock, shall be scarified to a depth of four (4") to six (6") inches to provide a bond between the existing surface and the proposed embankment. Scarification shall be accomplished by plowing, discing, or other approved means. The material that has been loosened shall be recompacted with the new embankment.

- E. Benching: Scarification is normally adequate for sloping surfaces. However, in certain cases where fill is to be placed against hillsides or existing embankment with slopes greater than four to one (4:1), the Architect/Engineer may direct the Contractor to key the fill material to the existing slopes by benching. A minimum of two (2') feet normal to the slope shall be removed and recompacted to insure that the new work is constructed on a firm foundation free of loose or disturbed material.
- F. Depositing: Fill material shall be placed in horizontal layers or lifts, evenly spread, not to exceed eight (8") inches in loose depth before conditioning and compaction. Unless otherwise permitted, each layer of fill material shall cover the length and width of the area to be filled and shall be conditioned and compacted before the next higher layer of fill is placed. Adequate drainage shall be maintained at all times.
- G. Watering: At the time of compaction, the moisture content of fill material shall be such that the specified compaction will be obtained and the fill will be firm, hard, and unyielding. Fill material, which contains excessive moisture shall not be compacted until it is dry enough to obtain the specified compaction.
- H. Compacting: Each layer of earth fill shall be compacted by approved tamping or sheepsfoot rollers, pneumatic tire rollers, or other mechanical means acceptable to the Architect/Engineer. Hand-directed compaction equipment shall be used in areas inaccessible to vehicular compactors.
- I. Grading: Embankments shall be constructed in proper sequence and at proper densities for their respective functions. All embankment serves in one capacity or another as subgrade (e.g., under topsoil, under concrete and asphalt pavement, under structures, etc.). Accordingly, the upper layer of embankment shall be graded to within plus or minus 0.10 foot of proper subgrade elevation prior to depositing topsoil, and prior to the construction of pavements, slabs, etc.
- 3.5 SELECT EMBANKMENT: Select embankment is defined as embankment constructed of select fill material. In general, it is constructed the same as earth embankment, except as described below.
  - A. Subgrade: In cases where select fill is to be placed on a subgrade surface that is proposed to be within 0.50 foot in elevation of the existing surface grade, the top six (6") inches of soil shall be stripped and removed as unsuitable waste. A minimum of six (6") inches of fill comprising the subgrade for the select embankment shall be prepared and compacted as "earth embankment under select embankment" (see Density Control paragraph).
  - B. Mixing: If the select fill is non-uniform in material composition, the Contractor may elect to mix with discing or pulverizing machinery to ensure that it meets the specified density and material analysis testing requirements. During mixing, care shall be taken not to disturb the subgrade nor to incorporate the subgrade material into the select material. Mixing would occur between the depositing and watering steps described in the embankment construction process. Also, see "Testing Requirements" under "SELECT MATERIALS" of the PRODUCTS section of this specification.
  - C. It is the sole responsibility of the Contractor to provide a select material of such quality that it can be "set-up" and "finished" to provide a stable support for the hot mix asphaltic concrete pavement. In addition to the density requirements, the subgrade must have sufficient strength at time of paving to support the proposed hot mix paving operation including paving machine, haul trucks, and rollers. If significant deterioration of the finished subgrade occurs during paving operations, paving shall be suspended until the required remedial action is taken by the Contractor. Approval of submitted samples of select material by the Architect/Engineer does not relieve the Contractor of this responsibility. All irregularities, depressions, or weak spots which develop in the subgrade shall be corrected prior to paving by scarifying the areas affected, adding suitable material as required, reshaping and recompacting by sprinkling and rolling. Should the select material

subgrade, due to any reason or cause, lose the required stability, density, or finish before surfacing is complete, it shall be recompacted and refinished at the sole expense of the Contractor.

# 3.6 DENSITY CONTROL:

- Backfill Placement and Compaction: The backfill material should be placed in maximum of eight (8)-inch lifts and compacted to a density ranging between 92 and 98 percent of maximum Standard Proctor (ASTM D 698) dry density at a moisture content ranging from one (1) percentage point below optimum to four (4) percentage points above optimum (-1 to +4).
- B. Non-Expansive, Select Fill: The select fill should be placed in loose lifts not exceeding eight (8) inches in uncompacted thickness, and be uniformly compacted to a minimum of ninety-five (95) percent of the maximum dry density determined by Standard Proctor (ASTM D 698). The moisture content of the fill at the time of compaction should be from minus two (2) to plus five (5) percentage points of optimum (-2 to +5).
- C. Pavement Subgrade: The subgrade should be compacted to a minimum of 95 percent of Standard Proctor (ASTM D 698) at a moisture content ranging from optimum to four (4) percentage points above optimum (0 to +4).

For additional information, refer to the Subsurface Investigation, located in Part I of the Project Manual.

- 3.7 MOISTURE MAINTENANCE: The specified moisture content shall be maintained in all embankments that are to function as subgrade for structures, areas of pavement, or for select embankment. After completion of the embankment, the Contractor shall prevent excessive loss of moisture in the embankment by sprinkling as required. Loss of moisture in excess of two (2%) percent below optimum in the top twelve (12") inches of the fill will require that the top twelve (12") inches of the embankment be scarified, wetted, and recompacted prior to placement of the structure, select fill or pavement. If desired, the Contractor may place an asphalt membrane of emulsified or cutback asphalt over the completed embankment and thus eliminate the sprinkling requirement.
- 3.8 TESTING: Spot field tests of embankment densities shall be required of the Contractor by the Owner at the place and time of their choosing. Any area not meeting density control requirements shall be immediately excavated, reconstructed, and retested, at the expense of the Contractor, until satisfactory results are obtained. See Section 01410.

END OF SECTION 02200

# SECTION 02210

# FINE GRADING

# PART 1 - GENERAL

- 1.1 SCOPE: Work in this section includes furnishing all labor, materials, equipment, and services required to construct, shape and finish earthwork to the required lines, fine grades and cross sections as specified herein and on the plans.
- 1.2 RELATED WORK SPECIFIED ELSEWHERE:
  - A. 1998 North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards
  - B. Grading Plan: Refer to plan sheets.
  - C. Geotechnical Report Riner Engineering Inc No. 21-0782
- 1.3 METHOD OF PAYMENT: Fine grading of earthwork is a necessary and incidental part of the work. The total cost will be included in the Bid Proposal as a subsidiary item. Payment will not be made on a unit price basis nor by any other separate measured payment method.
- 1.4 GENERAL IMPORTANCE: Properly placed and finished earthwork accomplished by fine grading is essential to the success of this project. Much of the area to be re-vegetated with sod or seed, as specified on the plans, has a minimal surface gradient, which must be properly finished to ensure positive surface drainage. The Contractor will be required to prove the competence and experience of his workers and subcontractors with respect to their abilities to execute the fine grading required on this project.

# **PART 2 - PRODUCTS**

- 2.1 TOPSOIL: Topsoil is used in the construction of fine graded areas to be planted with sod, seed, or other planted materials. Topsoil material must be approved by the Owner's Representative, prior to delivery to site.
  - A. Topsoil shall be Screened Loam. Screened Loam shall be a sandy loam, free from subsoil, of uniform quality as manufactured and blended by Living Earth, 871 Hwy 96, Pineland Texas 75968, www.livingearth.net, Phone 409-584-2155 or approved equal.
  - B. Topsoil shall be free from hard clods, roots, sods, stiff clay hard pan, stones larger than 1", lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks or any other undesirable material. No topsoil is permitted that has been harvested from a previous agricultural or industrial site.
  - C. Topsoil shall be blended with 25% Organic Compost by volume in order to achieve at least 3% organic matter determined by the wet combustion method (chromic acid reduction) as described in Circular #757 by the U.S. Department of Agriculture. The acidity range shall be between pH 6.5 and 8.0 inclusive. The mechanical analysis of the soil shall be as follows:

PASSING RETAINED ON PERCENTAGE	
<u>SIEVE SIZE</u>	PERCENT PASSING
1" Screen	100%
1/4" Screen	Gravel not more than 30%
#100 Sieve Coarse	Medium and Fine Sand 40-60%
#100 Sieve Very Fine	Sand, Silt 40-60% and Clay

- D. Compost shall be an organic, aerobically composted product containing grass clippings, leaves, manure, straw, stable bedding and other valuable organic components consisting of 80% vegetative material and 20% manure. Compost shall be stable, free of weeds, weed seeds, insects and pests with pH ranges from 6.5 to 8.0. Manufactured by Living Earth, 1901 California Crossing Rd., Dallas, Texas, 75220, www.livingearth.net, Phone 972-869-4332 or approved equal. Compost provider shall also be a current participant in the US Composting Council Seal of Testing Approval Program (STA).
- E. Submittal:
  - a. Contractor shall submit a (5) gallon container with each type of material used.
  - b. Topsoil analysis to include: source location, content percentage, ph, organic content.
  - c. Compost analysis to include: source location, content percentage, ph, organic content.
  - d. Compost provider certification.
- 2.2 "BLUE TOP" STAKES: Wooden stakes shall be used to mark final fine grades. Stakes shall be capable of being driven fully into the ground without splitting and without pulverization of their tops. Nominal dimensions of stakes shall not be less than 2"x2"x8" long with all four sides beveled into a sharpened bottom point at one end and with a flat top at the other end. After being driven to the proper elevation, each stake top shall be securely fitted with a brightly colored attachment of fibrous plastic strands suitable for promoting visual identification of the driven stake.

# **PART 3 - EXECUTION**

3.1 GENERAL: All fine grading and corresponding construction shall be performed as specified herein, and the completed work shall conform to the required lines, grades, and detailed illustrated on the plans.

# 3.2 ALLOWABLE DEVIATION:

- A. The maximum allowable deviation from the required finished grades of a line or plane shall be a slope (gradient) of plus or minus 0.5% in a horizontal dimension of eight (8') feet maximum. This shall be field tested without using and eight (8') foot long straight edge. If the surface has a deviation of more than one-half inch (1 ½') above or below the midpoint of the straight edge when its ends rest on high or low points, the finished grade will be unsatisfactory and shall be immediately corrected.
- B. Surface gradients and flowlines may be similarly checked by the use of string lines and survey instruments. The Sabine River Authority will be the judge of whether deviations from the designed gradients are acceptable or not.
- 3.3 LIMITS OF WORK: The limits of areas to be fine graded shall generally correspond to the areas to be revegetated and/or as illustrated on the plans to be planted with sod, seed, or plant material.

## 3.4 SEQUENCE OF WORK:

- A. Fine grading will not begin until all structures and concrete are complete, in place, tested/inspected, and properly backfilled. Fine grading will not be attempted until construction which involves heavy vehicles is complete.
- B. After fine grading is accomplished, it shall be the Contractor's responsibility to protect all fine graded areas from vehicular traffic or other disruptive activities. Damages to the fine graded surfaces will be restored to a satisfactory condition as prescribed herein until final acceptance.
- 3.5 FINE GRADING OPERATIONS: As a minimum, the following measures will be executed in the accomplishment of fine grading on areas to be re-vegetated and/or as illustrated on the plans to be planted with sod, seed or planting materials.
  - A. Topsoil shall first be placed at a depth of four (4") inches and shall be rough graded to within 0.05 foot of finished grade. Topsoil placement shall be performed as follows:
    - 1. Clear the subgrade of stones larger than four (4) inches in any dimension, and of concrete, wood, construction debris, and other deleterious matter. Excavate to a depth of twelve (12) inches all areas that may have been saturated with oil, gasoline or bituminous products and backfill with clean earth.
    - 2. Import topsoil mix directly to site of deposition or stockpile new topsoil mix on site in quantity needed to produce the required depth after spreading. Protect topsoil mix piles from erosion with tarpaulins and limit boards.
    - 3. Spread two (2) inches topsoil mix in median and two (2) inches topsoil on side swales to existing soil and water to settle the mixture to one (1) inches below top of curb. Feather smoothly finished grade to reduce undulation.
    - 4. Contractor shall take necessary measures to keep the topsoil mix friable and porous. Do not handle or work topsoil mix when it is excessively wet or during a rainfall. Topsoil mix shall not be placed on any subgrade that is heavily compacted to prevent uneven mixture until it is loosened or tilled. Till the mixed soil at three (3) inches depth and re-till any areas that become unduly compacted by vehicular movement.
    - 5. Use of heavy machinery in placement of topsoil material should be minimal. No heavy equipment will be allowed to be used without the written permission of the Parks Project Manager.
  - B. Fine grading shall be executed by the placement and use of final grade stakes or "blue tops". Final grade stakes shall be placed at intervals not to exceed seventy-five (75') feet along the exact contour lines as dimensioned on the grading plan. The stakes will be driven to the exact foot elevation of the contour and will then be marked with a brightly colored plastic attachment.
  - C. Final grade stakes will also be placed wherever a contour line makes a significant change of direction and on critical spot grades as directed by The Sabine River Authority and the project Landscape Architect/Engineer.
  - D. It is anticipated that some areas of topsoil may become overcompacted and resistant to proper grading. Such areas will be loosened and pulverized with discing machinery and aeration, and will then be recompacted to normal density before fine grading. The use of a watering truck to moisten dried and hardened areas may be necessary.

- E. The Contractor shall be responsible for minor adjustments to the finished grade if such treatment is required in the opinion of the Parks Project Manager.
- F. In an effort to prevent excessive weed growth, the Contractor should be prepared to immediately install the sod upon the completed and acceptable finished grade.
- G. Upon completion of fine grading and top-soiling operations, no trucks or other heavy equipment shall be driven over finished areas.

# 3.6 ACCEPTABILITY:

- A. Provide 72-hour notification to Landscape Architect and/or Owner's Representative for final grade inspection prior to sod or seed installation.
- B. Fine graded areas shall be true in plane, even in gradient (slope), uniform in surface texture, and of normal compaction. Areas of loose granular soil pockets interspersed with overcompacted soils are not acceptable. Fine graded areas for sod, seed and planting beds will promote complete surface drainage, and will be ready for planting, and will ensure pliability.
- B. The Landscape Architect/Engineer will perform instrumental checks of final grade stakes and surface gradients as he deems proper and necessary. Unsatisfactory areas will be regarded and corrected until accepted by the Owner.
- 3.7 SITE MAINTENANCE: The Contractor is responsible for the maintenance of all finished surface gradients in the project until final acceptance. The Contractor will maintain erosion control measures up until final acceptance of fine grading and re-vegetation by the Owner.

# END OF SECTION 02210

## SECTION 02220

## EXCAVATION, TRENCHING, AND BACKFILLNG

## PART 1 - GENERAL

- 1.1 SCOPE: The work to be performed under this section of the specifications shall consist of furnishing all labor, equipment and materials, and performing all operations in connection with the excavation, trenching, and backfilling for the installation of water, sanitary sewer, drain lines, and perforated pipe underdrains as shown on the plans and as specified herein. Contractor will be required to coordinate with the selected Skate Park Contractor for verification of the rough grades located within and adjacent to the proposed skate park site.
- 1.2 RELATED WORK SPECIFIED ELSEWHERE:
- 1.3 SUBMITTALS: Submit to the Engineer in conformance with the requirements of the Conditions of the Contract.

## **PART 2 - PRODUCTS**

2.1 MATERIALS: No materials are required in this section.

## **PART 3 - EXECUTION**

- 3.1 EXCAVATION:
  - A. General: Excavation shall include the removal of any trees, stumps, brush, debris or other obstacles that may obstruct the line of work, and the excavation and removal of all earth, rock, or other materials to the extent necessary to install the pipe, appurtenances, and structures in conformance with the line and grades shown in the plans or as specified.
  - B. Maximum and Minimum Width of Trenches: The sides of all trenches shall be cut as nearly vertical as possible from the bottom of the trench to a point twelve (12") inches above the top of the pipe when it is laid to grade. The minimum width of trench in which the pipe may be installed shall be as shown in the plans, measured at an elevation in the trench which is twelve (12") inches above the top of the pipe when it is laid to grade.
    - 1. Whenever the prescribed maximum trench width is exceeded, the Contractor shall use the next higher class of embedment or encasement than specified, based upon the load factors shown on the plans, and the additional cost incurred will be borne by the Contractor.
    - 2. Nothing herein shall be construed as prohibiting the Contractor from moving the upper portion of earth to a depth twelve (12") inches above the top of the pipe, in sections of the line where the cut is deep, by means of scrapers, bulldozers, or other dirt moving equipment, as a preliminary to trenching for the pipe if he elects to do so and has permission therefor from the property owner whose land will be affected. Such permission must be obtained from the property owner prior to the start of any such earth moving operations.
  - C. Sheeting and Shoring: In caving ground, or in wet, saturated, or flowing materials, the sides of all trenches and excavation shall be adequately sheeted and braced so as to maintain the excavation free from slides or cave-ins and safe for workmen. It shall be the sole responsibility of the Contractor to conform to the requirements of Occupational Safety and Health Act of 1970.
    - 1. Sheeting and shoring shall not be left in place unless its removal is impractical, as determined by the Architect/Engineer.

- D. Dewatering Excavation: The Contractor shall, commencing sufficiently in advance of excavation, during the excavation period, and as long thereafter as the condition of the work may require, provide and maintain in good operating condition such equipment as may be required to prevent all water from entering any trench excavation. This shall include, but is not limited to: surface water which would drain into the excavation; seepage water which would enter the trench as a result of the excavation and a high ground water level; and the water which could penetrate the trench bottom due to the anticipated piezometric head coupled with the removal of overburden should the Contractor not lower the water table in advance of the excavation. Backfilling operations shall be completed before dewatering operations are suspended. Water removed from the excavation shall be disposed of in such a manner as to prevent damage to adjacent property or to other work under construction. Damage of whatever nature caused by dewatering the work or failure to dewater the work satisfactorily shall be promptly repaired and/or remedied by the Contractor at his own expense.
  - 1. Provision shall be made for the satisfactory disposal of water pumped from excavations so as to prevent damage to public or private property. In all cases, accumulated water in the trench shall be removed before placing embedment, laying pipe, placing any concrete or backfilling.
- E. Subgrade in Earth: Where a firm and stable foundation for the pipe can be obtained in the natural soil and where special embedment is not shown on the plans or specified herein, the bottom of the trench shall be carefully and accurately trimmed to fit the lower portion of the pipe barrel. Bell holes shall be excavated for each joint. The bell holes shall be accurately located and shall be of sufficient width and depth to allow ample room for making the joint and to relieve the pipe bell of all load.
  - 1. Should the excavation be carried below grade, except as herein specifically provided, the Contractor shall, at his own expense, refill it to the proper elevation with gravel or crushed stone, which shall be compacted by tamping until it is firm and unyielding.
- F. Soft Subgrade: If soft or spongy material is encountered in the excavation at subgrade level, after proper dewatering has been performed, it shall be removed, to such a depth that, by replacing the unsuitable material with tamped crushed stone or gravel, a firm and stable foundation can be secured.
- G. Disposal of Excavated Materials: Excavated material shall be piled adjacent to the work to be used for backfilling as required. Where required, desirable topsoil shall be piled separately in a careful manner and replaced in its original position.
  - 1. Excavated material which is unsuitable for backfilling, and excess material, shall be disposed of in a manner approved by the Owner.
- H. Subgrade in Rock: If the bottom of the excavation for the pipeline is found to be in rock or other hard material that cannot be excavated to a true subgrade and shaped to provide uniform bearing for the pipe barrel, the rock or other material shall be removed to a depth not less than three (3") inches below subgrade and the bottom of the trench brought to true subgrade elevation by filling with gravel or suitable rock cuttings and shavings from the excavation and compacting by means of tamping until a firm and uniformly unyielding foundation is obtained.
- I. Damage to Existing Utilities: Where existing utilities are damaged, they shall be replaced immediately with material equal to or better than the existing material. Such work shall be at the entire expense of the Contractor. The Contractor shall immediately notify the Owner of the damaged utility facility.

# 3.2 BACKFILLING:

- A. Backfilling shall include the refilling and consolidating of the fill in trenches and excavations up to the surrounding ground surface or road grade at crossings. Backfilling shall be done with good earth, sand, or gravel and shall be free from large rocks or hard lumpy material. No material of a perishable, spongy or otherwise unsuitable nature shall be used in backfilling.
- B. After the pipe and embedment have been placed, the method of backfilling pipe trenches shall be as follows: Select material shall first be carefully placed on both sides of the pipe simultaneously in layers of not more than four (4") inches in loose thickness, and these layers shall be firmly compacted by hand or mechanical tamping. The layers of backfill shall be sprinkled lightly with water if additional moisture is required for proper compaction. This process of filling and tamping in layers shall be continued until the backfill is brought up to the level of the pipe spring line. A sufficient amount of selected material shall then be carefully placed over the top of the pipe so that, when consolidated, the level of the select material will be not less than twelve (12") inches above the top of the pipe. Before backfilling the remainder of the trench, the select material shall be consolidated by jetting and flooding or mechanical tamping, at the option of the Contractor, to such an extent as to secure uniform consolidation.
- C. Excavated material which is unsuitable for backfilling and excess material shall be disposed of in a manner approved by the Architect/Engineer.

END OF SECTION 02220

# SECTION 024119

# SELECTIVE DEMOLITION

# PART 1 – GENERAL

# 1.01 RELATED DOCUMENTS

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

# 1.02 SUMMARY

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
  - 1. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
  - 2. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements.

# 1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

# 1.04 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

## 1.05 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.
  - 6. If needed, insert list of conference participants not mentioned in Section 013100 "Project Management and Coordination."

## 1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- E. Pre-demolition Photographs or Video: Submit before Work begins.
- F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

# 1.07 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
- 1.08 QUALITY ASSURANCE
  - A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- 1.09 FIELD CONDITIONS
  - A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
  - B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
  - D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
    - 1. Hazardous materials will be removed by Owner before start of the Work.
    - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
  - E. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
    - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
    - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
    - 3. Retain subparagraph below if hazardous materials are known to be present. Delete if Owner does not have, or will not provide, material safety data sheets for these materials.
    - 4. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
  - F. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.
  - G. Storage or sale of removed items or materials on-site is not permitted.
  - H. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

# 1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

# **PART 2 - PRODUCTS**

# 2.01 PEFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

# **PART 3 - EXECUTION**

## 3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
  - 2. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
  - 1. Comply with requirements specified in Section 013233 "Photographic Documentation."
  - 2. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.

3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

## 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
  - 2. Arrange to shut off indicated utilities with utility companies.
  - 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

## 3.03 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

# 3.04 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting

flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

- 5. Maintain adequate ventilation when using cutting torches.
- 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
- 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
- 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- 9. Dispose of demolished items and materials promptly comply with requirements in Section 017419 "Construction Waste Management and Disposal.
- B. Work in Historic Areas: Selective demolition may be performed only in areas of the Project that are not designated as historic. In historic spaces, areas, and rooms or on historic surfaces, the terms "demolish" or "remove" shall mean historic "removal" or "dismantling" as specified in Section 013591 "Historic Treatment Procedures."
- C. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area designated by Owner.
  - 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.
  - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

#### 3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using powerdriven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings. Do not use methods requiring solvent-based adhesive strippers.
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
  - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
  - 2. Remove existing roofing system down to substrate.
- 3.06 DISPOSAL OF DEMOLISHED MATERIALS
  - A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
    - 1. Do not allow demolished materials to accumulate on-site.
    - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
    - 3. Coordinate first subparagraph below with use of elevators, stairs, or building entries permitted by building manager.
    - 4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
    - 5. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
  - B. Burning: Do not burn demolished materials.
  - C. Burning: Burning of demolished materials will be permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
  - D. Disposal: Transport demolished materials and dispose of at designated spoil areas on Owner's property.
  - E. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

# 3.07 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.08 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Items to Be Removed: See construction drawings.
- B. Existing Items to Be Removed and Salvaged: See construction drawings.
- C. Existing Items to Be Removed and Reinstalled: See construction drawings.
- D. "Existing Items to Remain" Paragraph below may be used to inform Contractor of items that are to remain, such as those that occur in, or are adjacent to, construction being demolished, but are not being removed and reinstalled. Retain paragraph if required.
- E. Existing Items to Remain: See construction drawings.

# END OF SECTION

# **DIVISION 3 – CONCRETE**

# SECTION 03 10 00

# CONCRETE FORMING AND ACCESSORIES

# PART I – GENERAL

## 1.1 References

- A. The following is a list of standards which may be referenced in this section:
  - 1. American Concrete Institute (ACI):
    - a. 117/117R, Standard Tolerances for Concrete Construction and Materials.
    - b. 318/318R, Building Code Requirements for Structural Concrete and Commentary.
    - c. 347, Guide to Formwork for Concrete.

# 1.2 Design Requirements

- A. Design formwork in accordance with ACI 347 and ACI 318/318R to provide concrete finishes specified in Section 03 30 00, Cast-in-Place Concrete.
- B. High range water reducer (superplasticizer) may be used in concrete mixes. Forms shall be designed for full hydrostatic pressure per ACI 347.
- C. Make joints in forms watertight.
- D. Limit panel deflection to 1/360th of each component span to achieve tolerances specified.

## 1.3 Submittals

A. Action Submittals:

2.

- 1. Shop Drawings:
  - a. Layout of panel joints and tie hole pattern.
  - b. Form Ties-Tapered Through-Bolts: Proposed method of sealing form tie hole; coordinate with details shown.
  - c. Manufacturer's data for form release agent.
  - Samples: One each as follows:
  - a. Form ties.
- B. Informational Submittals:
  - 1. Statement of qualification for formwork designer.
  - 2. Manufacturer's Certificate of Proper Installation.
- 1.4 Qualifications
  - A. Formwork Designer: Formwork, falsework, and shoring design shall be by a structural engineer licensed by the State of Florida.

# PART II – PROJECTS

- 2.1 Form Materials
  - A. Wall, Footings and Encasements:

- 1. Materials: Plywood, hard plastic finished plywood, or steel in "new and undamaged" condition, of sufficient strength and surface smoothness to produce specified finish.
- B. Form Release Agent:
  - 1. Material: Release agent shall not bond with, stain, or adversely affect concrete surfaces, and shall not impair subsequent treatments of concrete surfaces when applied to forms. A ready-to-use water based material formulated to reduce or eliminate surface imperfections, containing no mineral oil or organic solvents. Environmentally safe, meeting local, state, and federal regulations and can be used in potable water facilities.
  - 2. Manufacturers and Products:
    - a. BASF, Shakopee, MN; MBT, Rheofinish 211.
    - b. Cresset Chemical Company; Crete-Lease 20-VOC.
    - c. Unitex Chemicals; Farm Fresh.
    - d. Atlas Construction Supply, Inc.; Bio-Guard.
- C. Form Ties:
  - 1. Material: Steel.
  - 2. Spreader Inserts:
    - a. Conical or spherical type.
    - b. Design to maintain positive contact with forming material.
    - c. Furnish units that will leave no metal closer than 1.5 inches to concrete surface when forms, inserts, and tie ends are removed.
  - 3. Wire ties not permitted.
  - 4. Flat bar ties for panel forms; furnish plastic or rubber inserts with minimum 1.5-inch depth and sufficient dimensions to permit patching of tie hole.
  - 5. Water Stop Ties:
    - a. Neoprene water stop 3/16 inch thick and 15/16 inch diameter whose center hole is one half diameter of tie, or molded plastic water stop of comparable size.
    - b. Orient water stop perpendicular to tie and symmetrical about center of tie.
    - c. Design ties to prevent rotation or disturbance of center portion of tie during removal of ends and to prevent water leaking along tie.

# PART 3 - EXECUTION

- 3.1 Form Surface Preparation
  - A. Thoroughly clean form surfaces that will be in contact with concrete or that have been in contact with previously cast concrete, dirt, and other surface contaminants prior to coating surface.
  - B. Exposed Wood Forms in Contact with Concrete: Apply form release agent as recommended by the manufacturer.
  - C. Steel Forms: Apply form release agent to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

## 3.2 Erection

- A. General: Unless specified otherwise, follow applicable recommendations of ACI 347.
- B. Beveled Edges (Chamfer):
  - 1. Form 1-inch bevels at concrete edges, unless otherwise shown.
  - 2. Where beveled edges on existing adjacent structures are other than 1-inch, obtain Engineer's approval of size prior to placement of beveled edge.

- C. Forms:
  - 1. Do not reuse forms with damaged surfaces.
  - 2. Locate form ties and joints in an uninterrupted uniform pattern.
  - 3. Inspect form surfaces prior to installation to assure conformance with specified tolerances.
- D. Form Tolerances: Provide forms in accordance with ACI 117/117R, ACI 347, and ACI 318/318R and the following tolerances for finishes specified:
  - 1. Walls, Footings and Encasement Tolerances:
    - a. Exposed Straight Horizontal and Vertical Surfaces: Flat planes within tolerances specified.
    - b. Lateral Alignment:
      - 1) Centerlines must be within plus or minus 1/2 inch from dimensions shown.
      - 2) At intersections, centerlines shall intersect within plus or minus 1/2 inch of dimensions shown.
    - c. Tolerances:
      - 1) Physical Dimensions: Maximum 1/4 inch minus or 1/2 inch plus from dimension shown.
      - 2) Elevations: Within plus or minus 1/2 inch.

## 3.3 Form Removal

- A. Nonsupporting forms may be removed after cumulatively curing at not less than 50 degF for 48 hours from time of concrete placement if:
  - 1. Concrete is sufficiently hard so as not to sustain damage by form removal operations.
  - 2. Curing and protection operations are maintained.
- B. Supporting forms may be removed in accordance with ACI 318/318R, Chapter 6, and at such time as concrete has reached compressive strength equal to 80 percent of specified 28-day compressive strength as determined by test cylinders.

# END OF SECTION 03 10 00

# SECTION 03 21 00

# REINFORCING STEEL

# PART II – GENERAL

## 1.1 References

- A. The following is a list of standards which may be referenced in this section:
  - 1. American Concrete Institute (ACI):
    - a. 318/318R, Building Code Requirements for Structural Concrete and Commentary.b. SP-66, Detailing Manual.
  - 2. American Welding Society (AWS): D1.4, Structural Welding Code Reinforcing Steel.
  - 3. ASTM International (ASTM):
    - a. A82, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
    - b. A185, Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
    - c. A497, Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
    - d. A615/A615M, Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
    - e. A706/A706M, Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
  - 4. Concrete Reinforcing Steel Institute (CRSI):
    - a. Placing Reinforcing Bars.
    - b. Manual of Standard Practice.
  - 5. International Conference of Building Officials (ICBO): ICBO Research Report.
  - 6. Wire Reinforcement Institute (WRI): Manual of Standard Practice, Welded Wire Fabric.

# 1.2 Submittals

- A. Action Submittals:
  - 1. Shop Drawings prepared in accordance with CRSI Manual of Standard Practice and ACI SP-66 Detailing Manual:
    - a. Bending lists.
    - b. Placing drawings.
  - 2. Welded, metallic sleeve splice, and mechanical threaded connection details and product data.
  - 3. Welding Qualification: Prior to welding, submit welder qualifications, AWS certifications, and nondestructive testing procedures in accordance with Section 05 05 23, Welding.
- B. Informational Submittals:
  - 1. Lab test reports for reinforcing steel showing stress-strain curves and ultimate strengths.
  - 2. Mechanical Threaded Connections:
    - a. Current International Conference of Building Officials (ICBO) Research Report or equivalent code agency report listing findings to include acceptance, special inspection requirements, and restrictions.
    - b. Manufacturer's instructions.

- c. Verification that device threads have been tested and meet requirements for thread quality, in accordance with manufacturer's published methods.
- 3. Test results of field testing.
- 1.3 Quality Assurance
  - A. Welder Qualifications: Certified in accordance with AWS D1.4, within the last 6 months.
- 1.4 Delivery, Storage and Handling
  - A. Unload, store, and handlebars in accordance with CRSI publication "Placing Reinforcing Bars."

# **PART II – PRODUCTS**

- 2.1 Materials
  - A. Deformed Billet-Steel Reinforcing Bars:
    - 1. Includes primary reinforcing bars, stirrups, ties, and spirals.
    - 2. ASTM A615/A615M, Grade 60, where welding is not required.
    - 3. ASTM A706/A706M, Grade 60, for reinforcing to be welded and for reinforcement where tight radius bends are required, such as closed ties and stirrups.
  - B. Mechanical Splices and Connections:
    - 1. Metal Sleeve Splice: Furnish with cast filler metal, capable of developing, in tension or compression, 125 percent of minimum tensile strength of bar.
      - a. Manufacturer and Product: Erico Products, Inc., Cleveland, OH; Cadweld T-Series.
    - 2. Mechanical Threaded Connections: Furnish metal coupling sleeve with internal threads engaging threaded ends of bars developing in tension or compression 125 percent of yield strength of bar.
      - a. Manufacturers and Products:
        - 1) Erico Products, Inc., Cleveland, OH; Lenton Reinforcing Steel Couplers.
        - 2) Richmond Screw Anchor Co., Inc., Fort Worth, TX; Richmond DB-SAE Dowel Bar Splicers.
  - C. Welded Wire Fabric:
    - 1. ASTM A185 or ASTM A497 and ACI 318/318R, using ASTM A82 wire of 75 ksi minimum tensile strength.
    - 2. Furnish flat sheets only, rolled sheets not permitted.

# 2.2 Accessories

- A. Tie Wire:
  - 1. Black, soft-annealed 16-gauge wire.
  - 2. Nylon-, epoxy-, or plastic-coated wire.
- B. Bar Supports and Spacers:
  - 1. Use precast concrete bar supports or all-plastic bar supports and side form spacers meeting the requirements of CRSI "Manual of Standard Practice". Do not use other types of supports or spacers.

- 2. Bar supports shall have sufficient strength and stiffness to carry loads without failure, displacement, or significant deformation. Space bar supports so minimum concrete cover is maintained for reinforcing between supports.
- 3. Use only precast concrete bar supports where concrete surfaces are exposed to weather, earth, water, chloride intrusion, or corrosive chemicals. Bar supports shall be nonconductive and have geometry and bond characteristics that deter movement of moisture from the surface to the reinforcement.
- 4. Precast concrete supports shall have the same color and minimum compressive strength and shall be made from same materials as that of the concrete in which they are to be embedded. Precast concrete supports shall be cast and properly cured for at least 7 days before use and shall have a wire or other device cast into each block for the purpose of attaching them securely to the reinforcing steel.
- 5. In Concrete Exposed to View After Form Removal: Use small precast concrete blocks made of same color and minimum compression strength as concrete in which they are embedded. All-plastic bar supports and side form spacers may be used, except where surface is exposed as described above.
- 6. Plastic Bar Supports: Manufactured by Aztec Concrete Accessories, Bloomington, CA.
- 7. Precast Concrete Supports: Total bond precast high performance concrete bar supports as supplied by Con Sys Inc., Pinawa, MB, Canada.

# 2.3 FABRICATION

- A. Follow CRSI Manual of Standard Practice.
- B. Bend bars cold.

# PART III - EXECUTION

- 3.1 Preparation
  - A. Notify Engineer when reinforcing is ready for inspection and allow sufficient time for inspection prior to placing concrete.
  - B. Clean reinforcing bars of loose mill scale, oil, earth, and other contaminants.
  - C. Coat wire projecting from precast concrete bar supports with dielectric material, epoxy, or plastic.

# 3.2 Reinforcing Bar Installation

- A. Bundle or space bars, instead of field bending where construction access through reinforcing is necessary.
- B. Spacing and Positioning: Conform to ACI 318/318R.
- C. Location Tolerances: In accordance with CRSI publication, "Placing Reinforcing Bars".
- D. Splicing:
  - 1. Follow ACI 318/318R.
  - 2. Use Class B tension lap splices, unless otherwise shown or permitted in writing by Engineer.
  - 3. Stagger splices in adjacent bars such that no more than 50 percent of the bars are spliced at one location. Space lap splices such that there is at least the equivalent of one Class B tension splice length of unspliced bar between splices.

- 4. Welded Splices: Obtain Engineer's approval. Accomplish by full penetration groove welds and develop a minimum of 125 percent of yield strength of bar.
- E. Mechanical Splices and Connections:
  - 1. Use only in areas specifically approved in writing by Engineer.
  - 2. Install threaded rods as recommended by manufacturer with threads totally engaged into coupling sleeve and in accordance with ICBO Research Report.
  - 3. For metal sleeve splice, follow manufacturer's installation recommendations.
  - 4. Maintain minimum edge distance and concrete cover.
- F. Tying Reinforcing Bars:
  - 1. Tie every other intersection on mats made up of Nos. 3, 4, 5, and 6 bars to hold them firmly at required spacing.
  - 2. Bend tie wire away from concrete surface to provide clearance of 2 inches from surface of concrete to tie wire.
- G. Reinforcement Around Openings: On each side and above and below pipe or opening, place an equivalent area of steel bars to replace steel bars cut for opening. Extend steel reinforcing a standard Class B tension lap splice length beyond opening at each end.
- H. Welding Reinforcement:
  - 1. Do not perform welding until Engineer's written approval is granted for welding reinforcement.
  - 2. Only ASTM A706/A706M bars shall be welded.
  - 3. Do not perform welding until welder qualifications and current (within 12 months) AWS Welder Certificates are approved.
- I. Straightening and Rebending: Field bending of reinforcing steel bars is not permitted.
- J. Unless permitted by Engineer, do not cut reinforcing bars in field.

# 3.3 Welded Wire Fabric Installation

- A. Use only where specifically shown.
- B. Extend fabric to within 3 inches of edges of slab, and lap splices at least 1-1/2 courses of fabric or minimum 8 inches.
- C. Tie laps and splices securely at ends and at least every 24 inches with tie wire.
- D. Place welded wire fabric on concrete blocks and rigidly support equal to that provided for reinforced bars. Do not use broken concrete, brick, or stone.
- E. Follow ACI 318/318R and current Manual of Standard Practice, Welded Wire Fabric.
- F. Do not use fabric that has been rolled. Install flat sheets only.

# 3.4 Tests and Inspection

- A. An independent testing agency shall be retained by Contractor and approved by the Engineer to visually inspect, 100 percent of all welds shall be visually inspected by an AWS CWI, and test reinforcing steel welds in accordance with AWS D1.4 as specified in Section 05 05 23, Welding.
- B. An independent testing agency shall be retained by Contractor and approved by the Engineer to inspect each mechanical splice and verify each component is installed in accordance with manufacturer's instructions and ICBO Research Report.

END OF SECTION 03 21 00

#### SECTION 03 30 00

#### CAST-IN-PLACE CONCRETE

#### PART I - GENERAL

#### 1.1 References

- A. The following is a list of standards which may be referenced in this section:
  - 1. American Concrete Institute (ACI):
    - a. 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
    - b. 223R, Guide for the Use of Shrinkage Compensating Concrete.
    - c. 301, Specifications for Structural Concrete.
    - d. 302.1R, Guide for Concrete Floor and Slab Construction.
    - e. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
    - f. 305R, Hot Weather Concreting.
    - g. 306.1, Standard Specification for Cold Weather Concreting.
    - h. 309R, Guide for Consolidation of Concrete.
    - i. 318, Building Code Requirements for Structural Concrete and Commentary.
  - 2. ASTM International (ASTM):
    - a. C31/C31M, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
    - b. C33, Standard Specification for Concrete Aggregates.
    - c. C39/C39M, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
    - d. C88, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
    - e. C94/C94M, Standard Specification for Ready-Mixed Concrete.
    - f. C143/C143M, Standard Test Method for Slump of Hydraulic Cement Concrete.
    - g. C150, Standard Specification for Portland Cement.
    - h. C157/C157M, Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
    - i. C192/C192M, Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
    - j. C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
    - k. C260, Standard Specification for Air-Entraining Admixtures for Concrete.
    - 1. C311, Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete.
    - m. C452, Standard Test Method for Potential Expansion of Portland-Cement Mortars Exposed to Sulfate.
    - n. C494/C494M, Standard Specification for Chemical Admixtures for Concrete.
    - o. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
    - p. C881, Epoxy-Resin-Base Bonding Systems for Concrete.
    - q. C1012, Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution.
    - r. C1218/C1218M, Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
    - s. D4580, Standard Practice for Measuring Delaminations in Concrete Bridge Decks by Sounding.

- 3. National Institute of Standards and Technology (NIST): Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.
- 4. National Ready Mixed Concrete Association (NRMCA).

# 1.2 Definitions

- A. Defective Areas: Surface defects that include honeycomb, rock pockets, indentations greater than 3/16 inch, cracks 0.010 inch wide, chips, air bubbles greater than 3/4 inch in diameter, pinholes, bug holes, embedded debris, lift lines, sand lines, bleed lines, leakage from form joints, fins and other projections, form popouts, texture irregularities, and stains and other color variations that cannot be removed by cleaning.
- B. Exposed Concrete: Concrete surfaces that can be seen inside or outside of structures regardless whether concrete is above water, dry at all times, or can be seen at low tide.
- C. New Concrete: Less than 60 days old.
- D. SRA: Shrinkage Reducing Admixture.

# 1.3 Submittals

- A. Action Submittals:
  - 1. Concrete Mix Proportions:
    - a. Proportions by weight of ingredients in mix.
  - 2. Manufacturer's Technical Data Sheet:
    - a. Concrete admixtures.
    - b. Bonding agent.
    - c. Evaporation retardant.
  - 3. Shop Drawings:
    - a. Product Data: Admixtures, bonding agent, bond breaker, and patching materials.
    - b. Design Data: Concrete mix designs signed by qualified mix designer.
    - c. Placement Drawings:
      - 1) Concrete, identifying location of each type of construction joint.
      - 2) Tremie concrete.
    - d. Gradation for coarse and fine aggregates, and combined together. List gradings, percent passing through each sieve size.
    - e. Detailed plan for hot weather placements including curing and protection for concrete placed in ambient temperatures over 80 degrees F.
    - f. Detailed plan for cold weather placements including curing and protection for concrete placed in cold ambient temperatures per ACI 306.1
    - g. Concrete repair methods and materials.
- B. Informational Submittals:
  - 1. Preinstallation Conference Minutes.
  - 2. Manufacturer's application instructions for bonding agent and bond breaker.
  - 3. Manufacturers' Certificate of Compliance (Current within last 6 months):
    - a. Portland cement.
    - b. Fly ash.
    - c. Admixtures:
      - 1) Air Entrainment.
      - 2) Water Reducing.
      - 3) High-Range Water-Reducing (Superplaticizer).
      - 4) Shrinkage Reducing Admixture.
      - 5) Anti-washout.

- 6) Viscosity Modifying.
- 7) Manufacturers' Certificate of Proper Installation.
- d. Aggregates.
- e. Bonding agent.
- f. Bond breaker.
- g. Patching materials.
- h. Evaporation retardant
- i. Admixtures: Manufacturers' Certificate of Proper Installation.
- 4. Statements of Qualification (Current within last 6 months):
  - a. Mix Designer.
  - b. Batch plant.
  - c. Contractor's resident superintendant for concrete installation.
- 5. Test Reports: (Certified and Current within 6 months):
  - a. Admixtures, test reports showing chemical ingredients and percentage of chloride in each admixture.
  - b. Source test analysis reports for cement and fly ash, including percentage of chloride content in each.
  - c. Statement identifying aggregates reactivity. Determine water soluble chloride in each component of aggregates in accordance with ASTM C1218/C1218M.
  - d. Each trial concrete mix design, signed by a Qualified Mix Designer.
  - e. Cylinder compressive test results for each of the laboratory concrete mixes.
  - f. Shrinkage sample test results for each of the laboratory concrete mixes.
- 6. Concrete Delivery Tickets:
  - a. For each batch of concrete before unloading at site.
  - b. Record of drum revolution counter, type, brand, test certification, and amount of fly ash used in accordance with ASTM C94/C94M, Section 16.
  - c. Amount of water added at the site and resulting w/cm ratio.
  - d. Amount of superplasticizer added at the site.

#### 1.4 Quality Assurance

- A. Qualifications:
  - 1. Mix Designer: Licensed professional engineer registered in the State of Florida or Florida DOT approved mix designer.
  - 2. Batch Plant: Currently certified by the National Ready Mixed Concrete Association.
  - 3. Maintain in the field office, as a minimum, a copy of ACI 301 and AASHTO T 277 Test for Density, Relative Density (Specific Gravity).
- B. Preinstallation Conference:
  - 1. Required Meeting Attendees:
    - a. Contractor, including pumping, placing, finishing, and curing subcontractors.
    - b. Ready-mix producer.
    - c. Admixture representative.
    - d. Testing and sampling personnel.
    - e. Owner and Port Representative.
    - f. Engineer.
  - 2. Schedule and conduct prior to incorporation of respective products into Project. Notify Port Representative and Engineer of location and time, at least 5 working days in advance.
  - 3. Agenda shall include:
    - a. Admixture types, dosage, performance, and redosing at site.
    - b. Mix designs, test of mixes, and Submittals.
    - c. Placement methods, techniques, equipment, consolidation, and form pressures.

- d. Control Joint locations and concrete placement sequencing; as well as Contraction/Construction Joint locations.
- e. Slump and placement time to maintain slump.
- f. Finish, curing, water retention, and evaporation retardant.
- g. Protection procedures for weather conditions.
- h. Other specified requirements requiring coordination.
- 5. Conference Minutes.

# **PART II - PRODUCTS**

- 1.5 Materials
  - A. Cement: Furnish from one source.
    - 1. Portland Cement:
      - a. Meet ASTM C150, Type II. (Type 1L will not be accepted)
      - b. Equivalent Alkalies: Maximum 0.60 percent, in accordance with ASTM C150, Table 2.
      - c. Tricalcium Aluminate Content: Maximum 8 percent.
      - d. Combine fly ash with cement at batch plant.

#### B. Aggregates:

2.

- 1. Natural Aggregates:
  - a. Furnish from one source.
  - b. Free from deleterious coatings and substances in accordance with ASTM C33, except as modified herein.
  - c. Free of materials and aggregate types causing popouts, discoloration, staining, or other defects on surface of concrete.
  - d. In compliance with ACI 223R recommendations.
  - e. Use job aggregates in the three laboratory trial batch proportioning tests.
  - Nonpotentially Reactive: In accordance with ASTM C33, Appendix XI, Paragraph X1.1.
- 3. Aggregate Soundness: Test for fine and coarse aggregates in accordance with ASTM C33 and ASTM C88 using sodium sulfate solution.
- 4. Fine Aggregates:
  - a. Clean, sharp, granular, natural sand. Screenings not Allowed.
  - b. ASTM C33.
  - c. Materials Passing 200 Sieve: 4 percent maximum.
  - d. Limit deleterious substances in accordance with ASTM C33, Table 1 with material
    - finer than 200 sieve limited to 3 percent, coal and lignite limited to 0.5 percent.
- 5. Coarse Aggregate:
  - a. Natural gravels, combination of gravels and crushed gravels, crushed stone, or combination of these materials containing no more than 15 percent flat or elongated particles (long dimension more than five times the short dimension).
  - b. Materials Passing 200 Sieve: 0.5 percent maximum.
  - c. Limit deleterious substances that react with alkalis to cause excessive expansion of concrete exposed to wetting, in accordance with ASTM C33, Table 3, for concrete exposed to Exposure Classes S2.
- C. Admixtures: Furnish from one manufacturer.
  - 1. Furnish from one manufacturer.
  - 2. Characteristics:
    - a. Compatible with each other and free of chlorides or other corrosive chemicals.

- b. Submit manufacturer's current certification that each specific admixture to be used in the mix is compatible with all other admixtures used in the mix.
- c. In compliance with ACI 223R recommendations.
- d. Admixtures shall be tested in trial batches with job materials and mixture proportions. Such tests shall evaluate:
  - 1) The admixture's influence on expansion;
  - 2) Water requirement;
  - 3) Air content;
  - 4) Consistency;
  - 5) Rate of slump loss;
  - 6) Bleeding;
  - 7) Rate of hardening;
  - 8) Compressive Strength; and
  - 9) Drying shrinkage.
- 3. Air-Entraining Admixture:
  - a. ASTM C260, nontoxic after 30 days and contains no chlorides.
  - b. Concrete with air-entrainment admixture added shall maintain air percentage as batched, within plus or minus 2 percent for time required for placement into structure.
  - c. Manufacturers and Products:
    - 1) W.R. Grace & Co.: "Darex" or "Daravair" Series.
    - 2) BASF Admixtures, Inc.: "MB-VR", "MB-AE90" or "Micro-Air".
    - 3) Sika Chemical Corporation: "Sika AER".
    - 4) Euclid Chemical Company: "Air Mix" or "AEA-92".
- 4. Water-Reducing Admixture: ASTM C494/C494M, Type A.
  - a. Manufacturers and Products:
    - 1) BASF Admixtures Inc.: Pozzolith or Polyheed.
    - 2) Euclid Chemical Co.: Eucon WR-91 or WR-75.
    - 3) W. R. Grace & Co.: MIRA Series.
    - 4) Sika Chemical Corp.: Plastocrete 161.
  - High-Range Water-Reducing Admixture (Superplasticizer):
  - a. ASTM C494/C494M.
  - b. Hold slump of 5 inches or greater for time required for placement.
  - c. Furnish type as recommended by manufacturer for allowed temperature ranges.
  - d. Type F or G.

5.

6.

- e. Manufacturers and Products:
  - 1) BASF Admixtures Inc.: Rheobuild 1000 or Glenium Series.
  - 2) Euclid Chemical Co.: Eucon 37/1037 or Plastol Series.
  - 3) W. R. Grace & Co.: ADVA Series.
  - 4) Sika Chemical Corp.: Sikament.
- Shrinkage Reducing Admixture:
- a. ASTM C157/C157M.
  - b. An admixture that reduces drying shrinkage and the potential for drying skrinkageinduced cracking and curling, by reducing the capillary surface tension of pore water, specified formulated for use in air-entrained concrete.
  - c. Manufacturers and Products:
    - 1) Euclid Chemical Company: Eucon SRA.
    - 2) W.R. Grace & Co.: Eclipse 4500.
- 7. Antiwashout Admixture for Tremie Concrete:
  - a. Specially developed to prevent cement washout of concrete placed under water.
  - b. Manufacturer and Product: BASF Admixtures Inc., Rheomac UW 450.
- 8. Viscosity Modifying Admixture: Used to enhance plastic concrete properties such as workability, pumpability, and stability for "self-consolidating" concrete.
  - a. BASF Admixtures, Inc.: "Rheomac VMA" Series.
  - b. Euclid Chemical Company: "Eucon SL" or "Visctrol".
- c. Sika Chemical Co.: "VisoCrete" Series.
- d. W.R. Grace & Co.: "VMAR" Series,
- D. Fly Ash (Pozzolan): Class F fly ash in accordance with ASTM C618, except as modified herein:
  - 1. Shall not be produced from process that has utilized hazardous or potentially hazardous materials.
  - 2. ASTM C618, Table 1, Loss of Ignition: Maximum 3 percent.
  - 3. ASTM C618, Table 2, Water Requirement: Maximum 100 percent of control.
  - 4. ASTM C618, Table 3, Effectiveness in Controlling Alkali-Silica Reaction: Maximum 100 percent expansion of test mixture as a percentage of low-alkali cement control at 14 days.
  - 5. ASTM C618, Table 3, Uniformity Requirements: Apply when loss on ignition of fly ash furnished exceeds 3 percent.
  - 6. ASTM C618, Table 3, Effectiveness in Contributing to Sulfate Resistance: Procedure A after 6-month sulfate exposure, maximum 0.05 percent.
  - 7. ASTM C618, Table 3, Effectiveness in Contributing to Sulfate Resistance: Procedure B, expansion of test mixture as a percentage of sulfate resistance cement control, after at least 6-month exposure, maximum 100 percent.

8. 
$$\frac{CaO(\%) - 5}{FE_2O_3(\%)}$$
: Maximum 1.5.

- 9. Fly ash used in concrete containing aggregate classified as potentially reactive for ASR (alkali-silica reactivity) shall be limited to Class F and shall contain low levels of CaO.
- E. Water: Clean and potable containing less than 500 ppm of chlorides, complying with the requirements of ASTM C1602.
- 1.6 Ancillary Materials
  - A. Bonding Agent:
    - 1. Furnish two-component, 100 percent solids, moisture-tolerant, structural epoxy adhesive that conforms to ASTM C881 and AASHTO M235.
    - 2. Consult manufacturer for surface finish, pot life, set time, vertical or horizontal application, and forming restrictions.
    - 3. Manufacturers and Products:
      - a. BASF Building Systems Inc.: Concresive.
      - b. Euclid Chemical Co.: Euco Epoxy System.
      - c. Sika Chemical Corp.: Sikadur 32.
  - B. Bond Breaker:
    - 1. Nonstaining type, providing positive bond prevention.
    - 2. Manufacturers and Products:
      - a. Burke Co.: Burke Clean Lift Bond Breaker.
      - b. Nox-Crete Products Group: Silcoseal Select.
      - c. Williams Distributors, Inc.: Williams Tilt-Up Compound.
  - C. Evaporation Retardant
    - 1. Master Builders, Inc.: Confilm.
    - 2. Euclid Chemical Co.: Eucobar.
    - 3. Refer to Section 03 39 00, Concrete Curing.

## 1.7 Concrete Mix Design

A. Design: Select and proportion ingredients using trial batches; sample, cure and test concrete mix through approved independent testing laboratory in accordance with ACI 211.1, ACI 223R, and ASTM C157/C157M.

Structural Concrete at Boat Ramp Mix shall incorporate at least the following:

- a. 5,000 psi at 28 days, classified as ACI 318 Exposure Class S2.
- b. Minimum Cementitious Material Content:
  - 1) 564 pounds per cubic yard.
  - 2) Increase cementitious materials content as required to obtain strength requirements and maintain water-cement ratio.
- c. Fly Ash: Maximum 25 percent, minimum 20 percent, of total weight of fly ash plus cement.
- d. Maximum Water-to-Cementitious Materials Ratio (w/cm): 0.40
- e. Coarse Aggregate: 1 inch (Size #57 Stone), conforming with ASTM C33.
- f. Fire Aggregate : Clean, sharp granular, natural sand, conforming with ASTM C33. No screenings allowed.
- g. Air Entrainment Admixture: 6 percent, plus or minus 1.5 percent.
- h. High Range Water-Reducing Admixture.
- i. Water-Reducing Admixture.
- j. Shrinkage Reducing Admixture.
- k. Design lab-cured trial mix cylinders, in accordance with ASTM C192/C192M and ASTM C157/C157M.
- 1. Use additional cement or cement plus fly ash above minimum specified if required to meet average compressive strength, F'cr.
- m. Use F'cr and herein specified shrinkage limits as basis for selection of concrete materials and proportions as set forth in ACI 211.1, ACI 301 and ACI 223R.
- n. F'cr: Equal to F'c plus 1,400 when data are not available to establish standard deviation.
- B. Footings: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 3000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
  - 3. Slump Limit: 3 inches; 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
  - 4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
  - 5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.
- C. Foundation Walls: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 3 inches; 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
  - 4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
  - 5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.

- D. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Minimum Cementitious Materials Content: 564 lb/cu. yd.
  - 3. Slump Limit: 4 inches, plus or minus 1 inch.
  - 4. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 5. Air Content: Air content of hard troweled finished floors shall not exceed 3 percent.
- E. Building Walls: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 4 inches; 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
  - 4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
  - 5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.
- F. Admixtures:
  - 1. Air Content:
    - a. Required air content shall be 4.5 percent to 7.5 percent when tested in accordance with ASTM C231.
    - b. Use 4 percent minimum for concrete placed under requirements of cold weather concreting, unless noted otherwise.
  - 2. Water Reducers: Use in all concrete.
  - 3. High Range Water Reducers (Superplastizicers):
    - a. Use in all structural concrete.
    - b. Control slump and workability to at least 5-inch slump at discharge into forms by adjusting high-range water-reducer at batch plant.
  - 4. Shrinkage Reducing Admixture.
    - a. Use in all structural concrete.
    - b. Aggregate Shrinkage Effects: Design mix for shrinkage characteristics of aggregate. Test for shrinkage in accordance with ASTM C157/C157M, results at 28 days shall not exceed 0.048 percent. Aggregate will be rejected if test values exceed these limits.
- G. Slump Range at Site:
  - 1. 5 inches minimum, 9 inches maximum for structural concrete with a high- range waterreducing admixture.
  - 2. 3 inches minimum and 5 inches maximum for concrete without high-range water-reducing admixture.
- H. Coarse Aggregate Gradation:
  - 1. As shown in the following table.
  - 2. Coarse Gradation Limits shown are for coarse aggregates based on Table 3 of ASTM C33 for Size Number 57 Stone (1-inch).

I. Tremie Concrete:

- 1. Minimum cement content of 658 pounds per cubic yard.
- 2. Use high range water reducing admixture (superplasticizers) admixture in accordance with ASTM C494/C494M, Type F or Type G.
- 3. Fine Aggregate Range: 40 percent to 50 percent of total aggregates by weight.
- 4. Use natural round gravel (pea rock) if available in Project area.
- 5. Proportion mix for design strength and slump range of 6 inches to 9 inches with maximum water-cementitious ratio (w/cm).
- 6. Use Antiwashout Admixture and Viscosity Modifying Admixture, as required in accordance with manufacturer's recommendations.

#### 1.8 Concrete Mixing

- A. General: In accordance with ACI 304R.
- B. Concrete Mix Temperatures: As shown below for various stages of mixing and placing:

Concrete Temperatures					
	Concrete Member Size, Minimum Dimension				
Ambient Air Temp.	<12"	12"-36"	36"-72"	>72"	
Minimum concrete temperature as mixed for indicated air temperature:					
Above 30 degF	60 degF	55 degF	50 degF	45 degF	
0 to 30 degF	65 degF	60 degF	55 degF	50 degF	
Below 0 degF	70 degF	65 degF	60 degF	55 degF	
Maximum allowable gradual temperature drop in first 24 hours after curing period and after end of protection:					
	50 degF	40 degF	30 degF	20 degF	

- C. Truck Mixers:
  - 1. Equip with electrically actuated counters to readily verify number of revolutions of drum or blades.
  - 2. Counter:
    - a. Resettable, recording type, mounted in driver's cab.
    - b. Actuated at time of starting mixers at mixing speeds.
  - 3. Truck mixer operation shall furnish concrete batch as discharged that is homogeneous with respect to consistency, mix, and grading.
  - 4. If slump tests taken at approximately 1/4 point and 3/4 point of load during discharge give slumps differing by more than 2 inches when specified, slump is more than 4 inches, discontinue use of truck mixer unless causing condition is corrected and satisfactory performance is verified by additional slump tests.
  - 5. Before attempting to reuse unit, check mechanical details of mixer, such as water measuring, and discharge apparatus, condition of blades, speed of rotation, general mechanical condition of unit, admixture dispensing equipment, and clearance of drum.
  - 6. Do not use nonagitating or combination truck and trailer equipment for transporting readymixed concrete.
  - 7. Concrete Volume in Truck:
    - b. Limit to 63 percent of total volume capacity in accordance with ASTM C94/C94M when truck mixed.
    - c. Limit to 80 percent of total volume capacity when central mixed.

- 8. Mix each batch of concrete in truck mixer for minimum 70 revolutions of drum or blades at rate of rotation designated by equipment manufacturer.
- 9. Perform additional mixing, if required, at speed designated by equipment manufacturer as agitating speed.
- 10. Place materials, including mixing water, in mixer drum before actuating revolution counter for determining number of mixing revolutions.
- D. Aggregates: Thoroughly and uniformly wash before use.
- E. Admixtures:
  - 1. Air-Entraining Admixture: Add at plant through manufacturer-approved dispensing equipment.
  - 2. Water Reducers: Add prior to addition of high-range water-reducing admixture (superplasticizers).
  - 3. High-range water-reducing admixture (superplasticizers) and Air-Entraining Admixtures:
    - b. Add at concrete plant only through equipment furnished or approved by admixture manufacturer.
    - c. Accomplish variations in slump, working time, and air content for flowable mixes by increasing or reducing high-range water-reducing admixture (superplasticizers) dose or air-entraining admixture dose at ready-mix plant only.
    - d. Equipment shall provide for easy and quick visual verification of admixture amount used for each dose.
    - e. Add discharge amount to each load of concrete into separate dispensing container, verify amount is correct, and add to concrete.
    - f. Additional dosage of high-range water-reducing admixture (superplasticizers) may be added in field using manufacturer-approved dispensing when unexpected delays cause too great of slump loss.
  - 4. Shrinkage Reduction Admixture: Add at plant through manufacturer approved dispensing equipment.
  - 5. Viscosity Modifying Admixture: Add at plant through manufacturer approved dispensing equipment.
- 1.9 Source Quality Control
  - A. Cement: Test for total chloride content.
  - B. Fly Ash: Test in accordance with ASTM C311.
  - C. Batch Plant Inspection: Engineer shall have access to and have right to inspect batch plants, cement mills, and supply facilities of suppliers, manufacturers, and Subcontractors, providing products included in these Specifications.
    - 1. Weighing Scales: Tested and certified within tolerances set forth in the NIST Handbook No. 44.
    - 2. Batch Plant Equipment: Either semiautomatic or fully automatic in accordance with ASTM C94/C94M.

#### **PART III - EXECUTION**

- 3.1 Placing Concrete
  - A. Preparation: Meet requirements and recommendations of ACI 304R and ACI 301, except as modified herein.

- B. Inspection: Notify Engineer at least 1 full working day in advance before starting to place concrete, and for each subsequent concrete placement.
- C. Discharge Time:
  - 1. As determined by set time, do not exceed 1-1/2 hours after adding cement to water unless special Engineer approved time delay admixtures are used. Coordinate time delay admixture information with manufacturer and Engineer prior to placing concrete.
  - 2. Adjust slump or air content at Site by adding admixtures for particular load when approved by Engineer. Then, adjust plant dosage for remainder of placement. Additional dosage at Site shall be through approved dispenser supplied by admixture manufacturer.
  - 3. Maintain required slump throughout time of concrete placement and consolidation. Discontinue use of high range water reducing admixture (superplasticizers) and provide new mix design if it fails to maintain slump between 4 inches to 9 inches and produce good consolidation for length of time required. Redesign mix adjusting set control admixtures to maintain setting time in range required.
- D. Placement into Formwork:
  - 1. Before depositing concrete, remove debris from space to be occupied by concrete.
  - 2. Prior to placement of concrete, dampen fill under slabs on ground, dampen sand where vapor retarder is specified, and dampen wood forms.
  - 3. Reinforcement: Secure in position before placing concrete.
  - 4. Place concrete as soon as possible after leaving mixer, without segregation or loss of ingredients, without splashing forms or steel above, and in layers not over 1.5 feet deep, except for slabs which shall be placed full depth. Place and consolidate successive layers prior to initial set of first layer to prevent cold joints.
  - 5. Use placement devices, for example, chutes, pouring spouts, and pumps.
  - 6. Vertical Free Fall Drop to Final Placement: 5 feet in forms 8 inches or less wide and 8 feet in forms wider than 8 inches, except as specified.
    - b. For placements where drops are greater than specified, use placement device such that free fall below placement device conforms to required value.
    - c. Limit free fall to prevent segregation caused by aggregates hitting reinforcing steel.
  - 7. Do not use aluminum conveying devices.
  - 8. Provide sufficient illumination in the interior of forms so concrete deposition is visible, permitting confirmation of consolidation quality.
  - 9. Joints in Concrete:
    - b. Ensure space beneath plastic waterstop completely fills with concrete.
    - c. During concrete placement, make visual inspection of entire waterstop area.
    - d. Limit concrete placement to elevation of waterstop in first pass, vibrate concrete under waterstop, lift waterstop to confirm full consolidation without voids, place remaining concrete to full height of slab.
    - e. Apply procedure to full length of waterstops.
  - 10. If reinforcement is in direct sunlight or is more than 20 degF higher in temperature than concrete temperature before placement, wet reinforcement with water fog spray before placing concrete to cool reinforcement.
- E. Conveyor Belts and Chutes:
  - 1. Design and arrange ends of chutes, hopper gates, and other points of concrete discharge throughout conveying, hoisting, and placing system for concrete to pass without becoming segregated.
  - 2. Do not use chutes longer than 50 feet.
  - 3. Minimum Slopes of Chutes: Angled to allow concrete to readily flow without segregation.
  - 4. Conveyor Belts:

- b. Approved by Engineer.
- c. Wiped clean with device that does not allow mortar to adhere to belt.
- d. Covered conveyor belts and chutes.
- F. Retempering: Not permitted for concrete where cement has partially hydrated.
- G. Pumping of Concrete:
  - 1. Provide standby pump, conveyor system, crane and concrete bucket, or other system onsite during pumping, for adequate redundancy to assure completion of concrete placement without cold joints in case of primary placing equipment breakdown.
  - 2. Minimum Pump Hose (Conduit) Diameter: 4 inches.
  - 3. Replace pumping equipment and hoses (conduits) that are not functioning properly.
  - 4. Aluminum pipes or conduits not permitted.
- H. Maximum Size of Concrete Placements:
  - 1. Limit size of each monolithic concrete placement to allow for strength gain and volume change as a result of shrinkage.
  - 2. Joints:
    - b. Locate Control Joints and Contraction/Construction Joints where shown on the Drawings.
    - c. Space Control Joints and Contraction/Construction Joints, as shown.
- I. Minimum Time between Adjacent Concrete Placements:
  - 1. Control Joints: 7 days water cure.
  - 2. Contraction Joints and/or Construction Joints: 7 days water cure.
- J. Removal of Water: Unless tremie method for placing concrete is approved by Engineer, construct watertight forms and remove all water from space to be occupied by concrete. Flush watertight forms and reinforcement, with fresh water, before placing concrete.
- K. Consolidation and Visual Observation:
  - 1. Consolidate concrete with internal vibrators with minimum frequency of 8,000 cycles per minute and amplitude as required to consolidate concrete in section being placed.
  - 2. Provide at least one standby vibrator in operable condition at placement Site prior to placing concrete.
  - 3. Consolidation Equipment and Methods: ACI 309R.
  - 4. Provide sufficient windows in forms or limit form height to allow for concrete placement through windows and for visual observation of concrete.
  - 5. Vibration consolidation shall not exceed distance of 3 feet from point of placement.
  - 6. Vibrate concrete in vicinity of joints to obtain impervious concrete.
- L. Hot Weather:
  - 1. Prepare ingredients, mix, place, cure, and protect in accordance with ACI 305R.
  - 2. Placement frequency shall be such that lift lines will not be visible in exposed concrete finishes.
  - 3. Maintain concrete temperature below 80 deg F at time of placement, or furnish test data or provide other proof that admixtures and mix ingredients do not produce flash set plastic shrinkage, or cracking as a result of heat of hydration. Cool ingredients before mixing to maintain fresh concrete temperatures as specified or less.

- 4. Provide for windbreaks, shading, fog spraying, sprinkling, ice, wet cover, or other means as necessary to maintain concrete at or below specified temperature.
- 5. Prevent differential temperature between reinforcing steel and concrete.
- 6. Evaporation Retardant: As specified herein and in Section 03 39 00, Concrete Curing.
- M. Cold Weather (
  - 1. Prepare ingredients, mix, place, cure, and protect in accordance with ACI 306.1
- 3.2 Placing Tremie Concrete Seals
  - A. Place concrete when water level inside area to be filled with concrete is equal to water elevation outside.
  - B. Maintain relation of water levels until concrete design strength is obtained.
- 3.3 Concrete Bonding
  - A. New Concrete:
    - 1. Surface of previous concrete placement shall be intentionally roughened, to provide a roughness profile of at least 1/4-inch amplitude.
    - 2. Clean surface to be bonded of all dirt, laitance, oil, grease, curing compounds, form release agents, and any other contaminants that will interfere with bonding.
    - 3. Apply epoxy bonding agent to concrete surface prior to placing fresh concrete. Place fresh concrete while the epoxy bonding agent is still tacky. If coating becomes glossy and loses tackiness, remove any surface contaminants, recoat surface with epoxy bonding agent, and proceed with placing fresh concrete.
  - B. Existing Concrete:
    - 1. Thoroughly clean and high pressure wash surfaces.
    - 2. Saturate existing concrete surface with clean water for 24 hours prior to placing fresh concrete.
    - 3. Remove all excess, standing, and puddle water from surface, then follow the procedures specified for "New Concrete", hereinabove.
- 3.4 Construction Joints
  - A. As specified in Section 03 10 00, Concrete Forming and Accessories; and as indicated drawings.
- 3.5 Curing Concrete
  - A. Alternate Form Ties; Through-Bolts:
    - 1. Mechanically roughen entire interior surface of through hole. Epoxy coat roughened surface and drive elastic vinyl plug to half depth. Dry pack entire hole from both sides of plug with nonshrink grout, as specified in Section 03 62 00, Nonshrink Grouting. Use only enough water to dry pack grout. Dry pack while epoxy is still tacky. If epoxy has dried, remove epoxy by mechanical means and reapply new epoxy.
    - 2. Compact grout using steel hammer and steel tool to drive grout to high density. Cure grout with water.
  - B. Exposed Metal Objects:

- 1. Metal objects not intended to be exposed in as-built condition of structure including wire, nails, and bolts, shall be removed by chipping back concrete to depth of 2 inches and then cutting or removing metal object.
- 2. Repair area of chipped-out concrete per requirements of Section 03 01 32, Repair of Vertical and Overhead Concrete Surfaces.
- C. Blockouts at Pipes or Other Penetrations:
  - 1. Install per details shown on Drawings or submit proposed blockouts for review.
  - 2. Use nonshrink, nonmetallic grout, Category I or II; Nonshrink Grouting.

#### 3.6 Concrete Vertical Surface Finishes

- A. Type W-1 (Ordinary Finish): Concrete surfaces not exposed to view:
  - 1. Patch tie holes.
  - 2. Knock off projections.
  - 3. Patch defective areas.
- B. Type W-2 (Smooth Finish): Concrete surfaces exposed to view. (Except Walking Surfaces)
  - 1. Patch tie holes.
  - 2. Grind off projections, fins, and rough spots.
  - 3. Patch defective areas and repair rough spots resulting from form release agent failure or other reasons to provide smooth uniform appearance.
- 3.7 Concrete Slab And Exposed Horizontal Surface Finishes
  - A. General:
    - 1. Finish concrete per the requirements of ACI 302.1R.
    - 2. Use manual screeds, vibrating screeds, or roller compacting screeds to place concrete level and smooth.
    - 3. Do not use "jitterbugs" or other special tools designed for purpose of forcing coarse aggregate away from surface and allowing layer of mortar, which will be weak and cause surface cracks or delamination, to accumulate.
    - 4. Do not dust surfaces with dry materials.
    - 5. Use evaporation retardant.
    - 6. Round off edges with steel edging tool, except where beveled or chamfered edges are shown. Steel edging tool radius shall be 1/4 inch for slabs subject to wheeled traffic.
  - B. Type S-1 (Steel Troweled with Broomed Finish):
    - 1. Finish by screeding and floating with straightedges to bring surfaces to required finish elevation. Use evaporation retardant.
    - 2. While concrete is still green, but sufficiently hardened to bear a person's weight without deep imprint, wood float to true, even plane with no coarse aggregate visible.
    - 3. Use sufficient pressure on wood floats to bring moisture to surface.
    - 4. After surface moisture has disappeared, hand trowel concrete to produce smooth, impervious surface, free from trowel marks.
    - 5. Do not use dry cement or additional water during troweling, nor will excessive troweling be permitted.
    - 6. Finish surface by drawing fine-hair broom lightly across surface.
    - 7. Broom in same direction and parallel to expansion joints, or, in the case of inclined slabs, perpendicular to slope.

- 3.8 Beam Or Bulkhead Cap And Encasement Finishes
  - A. General: Inject cracks with crack repair epoxy. Patch and repair defective areas.
  - B. Type B-1: (Fill/Earth Side) Match vertical surface finish Type W-1.
  - C. Type B-2: (Water Side- Exposed) Match vertical surface finish Type W-2.
- 3.9 Backfill Against Walls And Bulkhead Cap
  - A. Do not backfill until concrete has obtained specified 28-day compressive strength.
  - B. Place backfill simultaneously on both sides of wall, where required, to prevent differential pressures.
- 3.10 Field Quality Control
  - A. Generally Contractor shall provide the following by a Third Party Testing Lab:
    - 1. Adequate facilities for safe storage and proper curing of concrete test cylinders onsite for first 24 hours, and for additional time as may be required before transporting to test lab.
    - 2. Concrete for testing of slump, air content, and for making cylinders from the point of discharge into forms. When concrete is pumped, Samples used shall be taken from discharge end of pump hose.
    - 3. Evaluation in accordance with ACI 301 and Specifications.
    - 4. Specimens that shall be made, cured, and tested in accordance with ASTM C31/C31M and ASTM C39/C39M.
    - 5. The frequency of testing shall require that three (3) 6-in by 12-in cylinders be testing for each 50 cubic yards of concrete placed or part thereof, for each weight and strength test, and shall be tested at 3-days, 7-days, and 28-days, with three (3) spare cylinders in the event of cylinder damage. Frequency of testing may be changed at discretion of Engineer.
    - Take Concrete samples for slump (ASTM C143/C143M), for strength tests (ASTM C31/C31M and ASTM C39/C39M), and shrinkage tests (ASTM C157/C157M). Take samples at the truck discharge, or for pumped concrete at placement (discharge) end of line.
    - 7. Reject concrete represented by cylinders failing to meet strength and air content specified.
    - 8. Testing of concrete will be by Contractor with a 3<sup>rd</sup> party agency.
  - B. High-Range Water-Reducer (Superplasticizer) Admixture Segregation Test: Test each truck prior to use on job (By Contractor).
    - 1. Segregation Test Objective: Concrete with 5-inch to 9-inch slump must stay together when slumped. Segregation is assumed to cause mortar to flow out of mix even though aggregate may stay piled enough to meet slump test.
    - 2. Test Procedure: Make slump test and check for excessive slump and observe to see if mortar or moisture flows from slumped concrete.
    - 3. Reject concrete if mortar or moisture separates and flows out of mix.
- 3.11 Manufacturer's Services
  - A. Contractor shall ensure that the manufacturer provides the following representative at Site for installation assistance, inspection, and certification of proper installation for concrete ingredients, mix design, mixing, and placement.
    - 1. Batch Plant Representative:
      - a. Observe how concrete mixes are performing.

- b. Be present during first placement of each type of concrete mix.
- c. Assist with concrete mix design, performance, placement, weather problems, and problems as may occur with concrete mix throughout Project.
- d. Establish control limits on concrete mix designs.
- 2. Admixture Manufacturer's Representative:
  - b. Demonstrate special features, product performance, product mixing, testing, and placement or installation for each type of admixture.
  - c. Observe how concrete mixes are performing.
  - d. Be present during first placement of each type of concrete mix.
  - e. Assist with concrete mix design, performance, placement, weather problems, and problems as may occur with concrete mix throughout Project, including instructions for redosing.
  - f. Provide equipment for control of concrete redosing for air entrainment or high range water reducing admixture (superplasticizers) at Site to maintain proper slump and air content if so needed.
- 3. Bonding Agent Manufacturer's Representative: Demonstrate product performance, product mixing, and placement.
- 3.12 Protection Of Installed Work
  - A. After curing as specified in Section 03 39 00, Concrete Curing, protect concrete from damage as a result of other construction work.
  - B. Repair defective areas and areas damaged by construction.
- 3.13 Schedule Of Concrete Finishes
  - A. Form Tolerances: As specified in Section 03 10 00, Concrete Forming and Accessories.
  - B. Provide concrete finishes as scheduled:

Area	Type of Finish			
Exterior Wall Surfaces				
Front Face of Walls and Exposed Surfaces (not sidewalks)	W-2			
Backfilled Face of Walls and Footings	W-1			
Top of Bulkhead Cap	S-1			

END OF SECTION 03 30 00

## SECTION 03 39 00

## CONCRETE CURING

## PART I - GENERAL

#### 1.1 References

- A. The following is a list of standards which may be referenced in this section:
  - American Association of State Highway and Transportation Officials (AASTHO):

     AASHTO M182, Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats.
  - 2. ASTM International (ASTM):
    - a. ASTM C171, Standard Specification for Sheet Materials for Curing Concrete.
    - b. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing concrete.
    - c. C1315, Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.

#### 1.2 Submittals

- A. Action Submittals:
  - 1. Manufacturers' data for the following products:
    - a. Evaporation retardant.
    - b. Curing Materials.
  - 2. Curing methods proposed.
- B. Informational Submittals:
  - 1. Curing Materials: Manufacturer's Certificate of Compliance showing moisture retention requirements.
  - 2. Retardants for Exposed Aggregate Finish: Manufacturer's Certification of Compliance.

## **PART II - PRODUCTS**

- 2.1 Materials
  - A. Materials for Curing Concrete:
    - 1. Impervious Sheeting: ASTM C171; waterproof paper, clear or white polyethylene sheeting, or polyethylene-coated burlap.
    - 2. Pervious Sheeting: AASHTO M182.
    - 3. Liquid Membrane-Forming Curing Compound: ASTM C309, white-pigmented, Type 2, Class B, and ASTM C1315: water-based, high-solids content:
      - a. Moisture Loss: 0.40 kg/square m/72 hours maximum.
      - b. Capable of meeting moisture retention at manufacturer's specified application rate.
    - 4. Manufacturers and Products:
      - a. Chemrex, Inc.; Masterkure.
      - b. Euclid Chemical Co.; Super Diamond Clear VOX.
      - c. WR Meadows, Inc.;VOCOMP-30.
      - d. Vexcon Chemical, Inc.; Starseal 1315.
      - e. Dayton Superior; Safe Cure and Seal 30%.
  - B. Evaporation Retardant:

- 1. Optional: Fluorescent color tint that disappears completely upon drying.
- 2. Manufacturers and Products:
  - a. Master Builders Co.; Confilm.
  - b. Euclid Chemical Co.; Eucobar.
- C. Water: Clean and potable, containing less than 500 ppm of chlorides.

# PART III - EXECUTION

- 3.1 Curing Of Concrete
  - A. Use one of the following methods as approved by Engineer:
    - 1. Method 1: Protect and soak surface by water ponding for 14 days, then apply liquid membrane-forming curing compound immediately after removal of forms.
    - 2. Method 2: Cover with burlap or cotton mats and keep continuously soaked for 14 days, then apply liquid membrane-forming curing compound immediately after removal of mats.
    - 3. Where water curing for concrete during cold weather (below freezing) is not possible, use Engineer-approved liquid membrane-forming curing compound at manufacturer's recommended coverage per gallon.
- 3.2 Evaporation Retardant Application
  - A. Spray onto surface of fresh concrete immediately after mat/blanket removal to react with surface moisture.
  - B. Reapply as needed to ensure a continuous moist surface until final finishing is completed.
- 3.3 Manufacturer's Services
  - A. Contractor shall provide manufacturer's representative at Site for installation assistance, inspection, and certification of proper installation for products specified.

## END OF SECTION 033900

# **DIVISION 31 – EARTHWORK**

## **SECTION 311000**

### SITE CLEARING

## PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 01 - General Requirements shall govern the work under this section.

## 1.02 WORK INCLUDED

- A. This Section includes the following:
  - 1. Clearing and grubbing.
  - 2. Stripping and stockpiling topsoil.
  - 3. Temporary erosion and sedimentation control measures.
- B. Related Sections include the following:
  - 1. Division 1 Section "Construction Facilities and Temporary Controls" for temporary construction fencing.

## 1.03 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

## 1.04 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
  - 3. Do not proceed with work on adjoining property until directed by Engineer.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## PART 2 - PRODUCTS (Not Used)

## **PART 3 - EXECUTION**

#### 3.01 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control Drawings.
- B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

#### 3.02 TREE PROTECTION

A. Reference Division 2 "Site Preparation/Tree Protection Fencing".

#### 3.03 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
  - 1. Arrange with utility companies to shut off indicated utilities.
- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer and Owner not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Excavate for and remove underground utilities indicated to be removed.

## 3.04 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
  - 3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches (450 mm) below exposed subgrade.
  - 4. Use only hand methods for grubbing within tree protection zone.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
  - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm) and compact each layer to a density equal to adjacent original ground.

#### 3.05 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
  - 2. Do not stockpile topsoil within tree protection zones.
  - 3. Dispose of excess topsoil as specified for waste material disposal.
  - 4. Select subparagraph above or below.
  - 5. Stockpile surplus topsoil to allow for respreading deeper topsoil.

#### 3.06 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
  - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
  - 2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

## 3.07 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
  - 1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

## END OF SECTION

### **SECTION 31 2000**

### EARTH MOVING

## PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 01 - General Requirements shall govern the work under this section.

#### 1.02 WORK INCLUDED

- A. This Section includes the following:
  - 1. Subgrade course for pavements.
  - 2. Base material for asphalt paving.
- B. All earthwork to be performed and materials used shall be in accordance with the Geotechnical Engineering Report. In the event of a discrepancy between the above-referenced standards, the plans, and/or any portion of this specification section, the order of precedence will be the above-referenced report, the County Design Standards, and then these specifications. The Contractor shall contact the engineer in the event of a discrepancy.

#### 1.03 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Material: Course placed between the subgrade asphaltic concrete paving.
- C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. Fill: Soil materials used to raise existing grades.
- F. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below base material.
- 1.04 SUBMITTALS
  - A. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

- 1. Classification according to ASTM D 2487 of each borrow soil material proposed for fill and backfill.
- 2. Laboratory compaction curve according to ASTM D 698 for each borrow soil material proposed for fill and backfill.

## 1.05 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner and then only after arranging to provide temporary utility services according to requirements indicated.
  - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Owner's written permission.
  - 3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

## PART 2 - PRODUCTS

## 2.01 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: On-site soils are suitable for use as fill within the pavement areas, provided they are free from organics and debris. Select fill must be used for grade adjustments in the helipad area.
- C. Unsatisfactory Soils: Materials, which do not comply with the requirements for acceptable material or which, cannot be compacted to the specified or indicated density.
- D. Subgrade: Stabilize the subgrade to materials as specified by Texas Department of Transportation. The subgrade material should be compacted to at least 98 percent of the modified Proctor maximum dry density (AASHTO T-180).
- E. Base Material: The limerock base course should have a minimum Limerock Bearing Ratio (LBR) of 100 and should be compacted to 98 percent of the modified Proctor maximum dry density (AASHTO T-180).
- F. Select Fill: USCS Classification CL and/or SC, with a Plasticity Index between 10 and 20.

# **PART 3 - EXECUTION**

## 3.01 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.
- 3.02 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

#### 3.03 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

#### 3.04 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

#### 3.05 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.
- C. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
  - 1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

#### 3.06 SUBGRADE INSPECTION

- A. Notify Testing Agency when excavations have reached required subgrade.
- B. If Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
  - 1. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).
  - 2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 20 tons.
  - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted backfill or fill as directed.

- C. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.
- 3.07 STORAGE OF SOIL MATERIALS
  - A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
    - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

#### 3.08 BACKFILL

- A. Place all backfill in strict accordance with Geotechnical Report for this project.
- B. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
  - 2. Surveying locations of underground utilities for Record Documents.
  - 3. Testing and inspecting underground utilities.
  - 4. Removing concrete formwork.
  - 5. Removing trash and debris.
  - 6. Removing temporary shoring and bracing, and sheeting.
  - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- C. Place backfill on subgrades free of mud, frost, snow, or ice.

# 3.09 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use satisfactory soil material.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.
- 3.10 SOIL MOISTURE CONTROL
  - A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

- 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
- 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

## 3.11 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. All compaction in strict accordance with Geotechnical recommendations.
- B. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment.
- C. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- D. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
  - 1. Under pavements, scarify and recompact existing subgrade and each layer of backfill or fill soil material at 95 percent. Refer to Geotechnical Report for thickness.
  - 2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
  - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
  - 4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

## 3.12 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

#### 3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
  - 1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. (186 sq. m) or less of paved area, as indicated in Geotechnical Report, but in no case fewer than 3 tests.
  - 2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet (46 m) or less of trench length, but no fewer than 2 tests.

C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

## 3.14 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

## 3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

## END OF SECTION

#### SECTION 31 3213

#### SOIL MIXING STABILIZATION

#### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 01 General Requirements shall govern the work under this section.
- B. This Section includes soil mixing stabilization and specialties outside the building, including the following:
  - 1. Excavation, treatment, and backfilling of subgrade for lime stabilization.
- C. All soil mixing stabilization to be performed and materials used shall be in accordance with the Geotechnical Engineering Report. In the event of a discrepancy between the above-referenced report and any portion of this specification section, the above-referenced report will govern. The Contractor shall contact the Engineer in the event of a discrepancy.

#### 1.02 REFERENCE STANDARDS

- A. American Society for Testing Materials (ASTM) latest edition
  - 1. C150 Portland Cement
  - 2. C618 Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete
  - 3. C 977 Quicklime and Hydrated Lime for Soil Stabilization
  - 4. D 1633 Compressive Strength of Molded Soil-Cement Cylinders
- B. American Association of State Highway and Transportation Officials (AASHTO) latest edition
  - 1. M 216 Lime for Soil Stabilization
- C. National Lime Association (NLA)
  - 1. Bulletin 326 Lime Stabilization Construction Manual
- D. Texas Department of Transportation Standards
  - 1. TXDOT Item 260 Lime Treatment (Road Mixed)
  - 2. TXDOT Item 265 Fly Ash or Lime Fly Ash Treatment (Road Mixed)

## 1.03 ENVIRONMENTAL REQUIREMENTS

- A. Do not install mixed materials in wind in excess of 10 mph or when temperature is below 40 degrees Fahrenheit.
- 1.04 QUALITY ASSURANCE

A. Perform work in accordance with state and local standards in conjunction with requirements specified herein.

## 1.05 SUBMITTALS

- A. Submit 30-pound sample of each material to be used at the site in airtight containers to the independent testing laboratory or submit gradation and certification of material that is to be used to the independent testing laboratory for review.
- B. Submit name of each materials supplier and specific type and source of each material. Change in source requires approval of Owner.
- C. Submit mix design and materials mix ratio that will achieve specified requirements of state and local agencies for soil stabilization.

## **PART 2 – PRODUCTS**

#### 2.01 MATERIALS

A. Hydrated Lime: TXDOT Item 260

#### 2.02 EQUIPMENT

A. Perform operations using suitable, well maintained equipment capable of excavating subsoil, mixing and placing materials, wetting, consolidating, and compacting of material.

#### **PART 3 – EXECUTION**

#### 3.01 PREPARATION

- A. Obtain approval from the independent testing laboratory of mix design before proceeding with placement.
- B. Start stabilization only when weather and soil conditions are favorable for successful application of proposed material.
- C. Proofroll subgrade to identify areas in need of stabilization in accordance with Section 2.

#### 3.02 EXCAVATION

- A. Excavate subsoil to depth sufficient to accommodate soil stabilization.
- B. Remove lumped subsoil, boulders, and rock that interfere with achieving uniform subsoil conditions.
- C. Notify Construction Manager of unexpected subsurface conditions. Discontinue affected work in area until notified to resume work.
- D. Correct areas over-excavated in accordance with Section 2.
- E. Remove excess excavated material from site.
- 3.03 SOIL TREATMENT AND BACKFILLING
  - A. Lime Stabilized Subgrade: Where indicated on Construction Drawings or as required after continual failure, treat prepared subgrade with hydrated lime in accordance with state highway department specifications (TXDOT Item 260).

- 1. A minimum of 48 hours of tempering time shall be provided before final mixing.
- 2. Subgrade soils shall be treated with lime at a rate of 6 to 8 percent lime, by dry weight.
- B. Subsoil shall be in accordance with the Geotechnical Report.
- C. Maintain optimum moisture of mixed materials to attain required stabilization and compaction.
- D. Finish subgrade surface in accordance with the Geotechnical Report.
- E. Remove surplus mix materials from site at no additional cost to the Owner.

## 3.04 CURING

- A. Immediately following compaction of mix, seal top surface with curing seal.
- B. Do not permit traffic for 72 hours after sealing top surface.
- 3.05 FIELD QUALITY CONTROL
  - A. Compression test and analysis of hardened fill material will be performed in accordance with Section 02300.
  - B. If tests indicate work does not meet specified requirements, remove work, replace and retest, at no cost to owner.

# **END OF SECTION**

### SECTION 31 50 00

#### EXCAVATION SUPPORT AND PROTECTION

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. Section includes temporary excavation support and protection systems.
- B. Related Requirements:
  - 1. Section 312000 "Earth Moving" for excavating and backfilling and for controlling surface-water runoff and ponding.

#### 1.03 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
  - 1. Review geotechnical report.
  - 2. Review existing utilities and subsurface conditions.
  - 3. Review coordination for interruption, shutoff, capping, and continuation of utility services.
  - 4. Review proposed excavations.
  - 5. Review proposed equipment.
  - 6. Review monitoring of excavation support and protection system.
  - 7. Review coordination with waterproofing.
  - 8. Review abandonment or removal of excavation support and protection system.

## 1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, performance properties, and dimensions of individual components and profiles, and calculations for excavation support and protection system.
- B. Shop Drawings: For excavation support and protection system, prepared by or under the supervision of a qualified professional engineer.
  - 1. Include plans, elevations, sections, and details.

- 2. Show arrangement, locations, and details of soldier piles, piling, lagging, tiebacks, bracing, and other components of excavation support and protection system according to engineering design.
- 3. Indicate type and location of waterproofing.
- 4. Include a written plan for excavation support and protection, including sequence of construction of support and protection coordinated with progress of excavation.

### 1.05 INFORMATIONAL SUBMITTALS

- A. Contractor Calculations: For excavation support and protection system. Include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Existing Conditions: Using photographs, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by inadequate performance of excavation support and protection systems. Submit before Work begins.
- C. Record Drawings: Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions.

#### 1.06 FIELD CONDITIONS

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
  - 1. Notify Owner no fewer than two days in advance of proposed interruption of utility.
  - 2. Do not proceed with interruption of utility without Owner's written permission.
- B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
- C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

## PART 2 - PRODUCTS

## 2.01 PERFORMANCE REQUIREMENTS

- A. Provide, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting earth and hydrostatic pressures and superimposed and construction loads.
  - 1. Contractor Design: Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer.
  - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
  - 3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.

4. Continuously monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes and to ensure that damage to permanent structures is prevented.

## 2.02 MATERIALS

- A. General: Provide materials that are either new or in serviceable condition.
- B. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.
- C. Steel Sheet Piling: ASTM A 328/A 328M, ASTM A 572/A 572M, or ASTM A 690/A 690M; with continuous interlocks.
  - 1. Corners: [Site-fabricated mechanical interlock] [Roll-formed corner shape with continuous interlock].
- D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of size and strength required for application.
- E. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.
- F. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- G. Tiebacks: Steel bars, ASTM A 722/A 722M.
- H. Tiebacks: Steel strand, ASTM A 416/A 416M.

#### **PART 2 - EXECUTION**

- 3.01 PREPARATION
  - A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
    - 1. Shore, support, and protect utilities encountered.
  - B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
    - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
  - C. Locate excavation support and protection systems clear of permanent construction so that construction and finishing of other work is not impeded.

#### 3.02 SOLDIER PILES AND LAGGING

- A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

## 3.03 SHEET PILING

- A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock vertical edges to form a continuous barrier.
- B. Accurately place the piling, using templates and guide frames unless otherwise recommended in writing by the sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- C. Cut tops of sheet piling to uniform elevation at top of excavation.

## 3.04 TIEBACKS

- A. Drill, install, grout, and tension tiebacks.
- B. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.
  - 1. Have test loading observed by a qualified professional engineer responsible for design of excavation support and protection system.
- C. Maintain tiebacks in place until permanent construction is able to withstand lateral earth and hydrostatic pressures.

## 3.05 BRACING

- A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
  - 1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by Architect.
  - 2. Install internal bracing if required to prevent spreading or distortion of braced frames.
  - 3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

## 3.06 FIELD QUALITY CONTROL

- A. Survey-Work Benchmarks: Resurvey benchmarks as required during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.
- B. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.
- C. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

#### 3.07 REMOVAL AND REPAIRS

- A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.
  - 1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlying construction and abandon remainder.
  - 2. Fill voids immediately with approved backfill compacted to density specified in Section 312000 "Earth Moving."
  - 3. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.
- B. Leave excavation support and protection systems permanently in place.

## **END OF SECTION**

# **DIVISION 32 – EXTERIOR IMPROVEMENTS**

# **SECTION 321216**

## ASPHALT PAVING

## PART 1 – GENERAL

## **1.1 RELATED DOCUMENTS**

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 – General Requirements shall govern the work under this section.

## **1.2 WORK INCLUDED**

- A. This Section includes the following:
  - 1. Hot-mix asphalt paving.
  - 2. Pavement-marking paint.
- B. All paving to be performed and materials used shall be in accordance with the Geotechnical

Engineering Report. In the event of a discrepancy between the above-referenced standards, the plans, and/or any portion of this specification section, the order of precedence will be the above-referenced report then these specifications. The Contractor shall contact the engineer in the event of a discrepancy.

# 1.3 **DEFINITIONS**

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.
- B. DOT: Department of Transportation.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: For each job mix proposed for the Work.
- C. Material Test Reports: For each paving material.

# 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
  - 1. Manufacturer shall be a paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of the state in which Project is located.
- B. Asphalt-Paving Publication: Comply with TxDOT Standards Specifications for Road and Bridge Construction, Latest Edition.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

# 1.7 **PROJECT CONDITIONS**

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
  - 1. Prime and Tack Coats: Minimum surface temperature of 60 deg F (15.5 deg C).
  - 2. Slurry Coat: Comply with weather limitations of ASTM D 3910.

- 3. Asphalt Base Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.
- 4. Asphalt Surface Course: Minimum surface temperature of 60 deg F (15.5 deg C) at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F (4 deg C) for oil-based materials, 50 deg F (10 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

# PART 2 – PRODUCTS

## 2.1 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Base Material: limerock meeting the requirements of TxDOT Standard Specifications for Road and Bridge Construction, Latest Edition.

# 2.2 ASPHALT MATERIALS

A. Surface Course: should consist of TxDOT Type SP asphaltic concrete meeting the requirements of TxDOT Standard Specifications for Road and Bridge Construction, Latest Edition.

# 2.3 AUXILIARY MATERIALS

- A. Joint Sealant: AASHTO M 301, hot-applied, single-component, polymer-modified bituminous sealant.
- B. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with FS TT-P-115, Type I or AASHTO M 248, Type N.
  - 1. Color: As indicated.
- C. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 45 minutes.
  - 1. Color: As indicated.
- D. Wheel Stops: Precast, air-entrained concrete, 2500-psi (17.2-MPa) minimum compressive strength, 4-1/2 inches (115 mm) high by 9 inches (225 mm) wide by 72 inches (1800 mm) long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.
  - 1. Dowels: Galvanized steel, 3/4-inch (19-mm) diameter, 10-inch (254-mm) minimum length.

# PART 3 – EXECUTION

# 3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

# 3.2 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch (25 mm) in existing pavements.
  - 1. Install leveling wedges in compacted lifts not exceeding 3 inches (75 mm) thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch (6 mm).
  - 1. Clean cracks and joints in existing hot-mix asphalt pavement.
  - 2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch (6 mm) wide. Fill flush with surface of existing pavement and remove excess.

3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch (6 mm) wide. Fill flush with surface of existing pavement and remove excess.

## 3.3 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
  - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

## 3.4 HOT-MIX ASPHALT PLACING

- A. Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.
  - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- B. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

## 3.5 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
  - 1. Clean contact surfaces and apply tack coat to joints.
  - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches (150 mm).
  - 3. Offset transverse joints, in successive courses, a minimum of 24 inches (600 mm).
  - 4. Construct transverse joints as described in AI MS-22, "Construction of Hot Mix Asphalt Pavements."
  - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

# 3.6 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Engineer.
- B. Allow paving to age for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

## 3.7 WHEEL STOPS

A. Securely attach wheel stops into pavement with not less than two galvanized steel dowels embedded at onequarter to one-third points. Securely install dowels into pavement and bond to wheel stop. Recess head of dowel beneath top of wheel stop.

## **3.8 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
  - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- E. One core sample will be taken for every 1000 sq. yd. (836 sq. m) or less of installed pavement, with no fewer than 3 cores taken.
- F. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- G. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

## 3.9 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
  - 1. Do not allow excavated materials to accumulate on-site.

## **END OF SECTION**
#### SECTION 32 1314

#### CONCRETE SIDEWALK

#### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 01 General Requirements, and Division 3 Concrete shall govern the work under this Section.
- 1.02 WORK INCLUDED
  - A. The work specified in this Section consists of the construction of concrete sidewalk in accordance with these Specifications and in conformity with the lines, grades, dimensions, and notes shown on the plans.

#### 1.03 RELATED WORK

- A. Section 024119 Selective Demolition
- B. Division 02200 Earthwork

#### **PART 2 - PRODUCTS**

- 2.01 CONCRETE
  - A. Concrete shall be Class A Concrete unless otherwise shown on the plans.
- 2.02 FORMS
  - A. Forms for this work shall be made of either wood or metal and shall have a depth equal to the plan dimensions for the depth of concrete being deposited against them. They shall be straight, free from warp or bends, and of sufficient strength when staked, to resist the lateral pressure of the concrete without displacement from lines and grade. Forms shall be cleaned each time they are used and shall be oiled prior to placing the concrete.

#### 2.03 SUBGRADE AND GRADING

- A. Excavation shall be made to the required depth, and the foundation material upon which the sidewalk is to be set shall be compacted to a firm, even surface, true to grade and cross-section, and shall be moist at the time that the concrete is placed.
- 2.04 JOINTS
  - A. Expansion joints between the sidewalk and the curb, and at all other locations indicated on the plans, shall be 1/4-inch wide, formed with a preformed joint filler. Preformed joint filler shall meet the requirements of AASHTO M153 or AASHTO M213.
  - B. Contraction joints may be of the open type or may be sawed. Open type contraction joints shall be formed by staking a metal bulkhead in place and depositing the concrete on both sides. After the concrete has set sufficiently to preserve the width and shape of the joint, the bulkhead shall be removed. After the sidewalk has been finished over the joint, the slot shall be edged with a tool having a 1/2-inch radius.

If the CONTRACTOR elects to saw the contraction joints, a slot approximately 1/8-inch-wide and not less than 1-1/2 inches deep shall be cut with a concrete saw after the concrete has set, and within the following periods of time:

Contraction joints shall be constructed at not more than twenty (20) foot intervals and shall be in place within twelve (12) hours after finishing.

#### PART 3 - EXECUTION

#### 3.01 PLACING

B. The concrete shall be placed in the forms to the required depth and shall be vibrated and spaded until mortar entirely covers its surface.

#### 3.02 FINISHING

- C. Screeding: The concrete shall be struck-off by means of a wood or metal screed, used perpendicular to the forms, and floated in order to obtain the required grade and remove surplus water and laitance.
- D. Surface requirements: The concrete shall be given a broom finish. The surface variations shall not be more than 1/4 inch under a ten-foot straightedge, nor more than 1/8 inch on a five-foot transverse section. The exposed edge of the slab shall be carefully finished with an edging tool having a radius of 1-1/2 inch.

#### 3.03 CURING

- A. The concrete shall be continuously cured for a period of at least 72 hours. Curing shall be commenced after finishing has been completed and as soon as the concrete has hardened sufficiently, to permit application of the curing material without marring the surface.
- B. Wet burlap, white-pigmented curing compound, waterproof paper or polyethylene sheets may be used for the curing.

#### END OF SECTION

#### **SECTION 321373**

#### CONCRETE PAVING JOINT SEALANTS

#### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 01 General Requirements and Division 3 Concrete shall govern the work under this section.
- 1.02 WORK INCLUDED
  - A. This Section includes the following:
    - 1. Expansion and contraction joints within cement concrete pavement.
    - 2. Joints between cement concrete and asphalt pavement.

#### 1.03 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated. In the event of a discrepancy between this specification section and the County Design Criteria, the County's Design Criteria shall govern. The Contractor shall notify the Engineer in the event of a discrepancy.
- 1.04 QUALITY ASSURANCE
  - A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
  - B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- 1.05 DELIVERY, STORAGE, AND HANDLING
  - A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
  - B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.06 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).
  - 2. When joint substrates are wet or covered with frost.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

#### PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

#### 2.02 COLD-APPLIED JOINT SEALANTS

- A. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.
  - 1. Available Products:
    - a. Crafco Inc.; RoadSaver Silicone.
    - b. Dow Corning Corporation; 888.
- B. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
  - 1. Available Products:
    - a. Crafco Inc.; RoadSaver Silicone SL.
    - b. Dow Corning Corporation; 890-SL.

#### 2.03 HOT-APPLIED JOINT SEALANTS

- A. Elastomeric Sealant for Concrete: Single-component formulation complying with ASTM D 3406.
  - 1. Available Products:
    - a. Crafco Inc.; Superseal 444/777.
    - b. Meadows, W. R., Inc.; Poly-Jet 3406.
- B. Sealant for Concrete and Asphalt: Single-component formulation complying with ASTM D 3405.
  - 1. Available Products:
    - a. Koch Materials Company; Product No. 9005.
    - b. Koch Materials Company; Product No. 9030.
    - c. Meadows, W. R., Inc.; Sealtight Hi-Spec.
    - d. Approved equals.
- 2.04 JOINT-SEALANT BACKER MATERIALS
  - A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
  - B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

- C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
- D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

#### 2.05 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

#### PART 3 – EXECUTION

#### 3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
  - 1. Joint Priming: Prime joint substrates where indicated or where recommended in writing by jointsealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

#### 3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of backer materials.
  - 2. Do not stretch, twist, puncture, or tear backer materials.
  - 3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.

- 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

#### 3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

#### 3.05 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

#### END OF SECTION

#### SECTION 32 17 23

#### PAVEMENT MARKINGS

#### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. All applicable provisions of the bidding and Contract Requirements, and Division 01 General Requirements shall govern the work under this Section.
- 1.2 WORK INCLUDED
  - A. The work covered by this Section shall include the furnishing of all labor, equipment and materials necessary to construct and install all pavement marking, and striping in accordance with the plans and these specifications.

#### 1.3 RELATED WORK

A. Section 321313 – Concrete Paving

#### 1.4 QUALITY ASSURANCE

A. Perform all work in accordance with the requirements of local agencies.

#### PART 2 - PRODUCTS

#### 2.1 PAVEMENT MARKINGS

- A. Chlorinated rubber-alkyd type, as per Fed Spec. No. TT-P-115, Type III, or conforming to the applicable Sections of the Texas Department of Transportation Standard Specifications.
  - 1. Paint shall be factory mixed, quick drying and non-bleeding type.
  - 2. Color shall be as per D.O.T. requirements.
  - 3. Striping, arrows, lane markers and stop bars shall be provided with paint containing reflective additive.
- B. Thermoplastic paint shall conform to the applicable Sections of the Texas Department of Transportation Standard Specifications.
- C. Traffic paint shall conform to the applicable Sections of the Texas Department of Transportation Standard Specifications.

#### **PART 3 - EXECUTION**

#### 3.1 TRAFFIC AND LANE MARKINGS

- A. Sweep dust and loose material from the sealed surface.
- B. Apply paint striping as indicated on the drawings, with suitable mechanical equipment to produce uniform straight edges.
  - 1. Apply in not less than (2) two coats as per manufacturer's recommended rates of applications.
- C. Protect pavement markings until completely dry in accordance with manufacturer's recommendations.

#### **END OF SECTION**



**GEOTECHNICAL REPORT** 

# ETTL Engineers & Consultants GEOTECHNICAL \* MATERIALS \* ENVIRONMENTAL \* DRILLING \* LANDFILLS

June 10, 2024

Isaac Brooks Sabine River Authority 169 RCR 1480 Point, TX 75472

SUBJECT: Lake Tawakoni Office Parking Lot Point, Texas Geotechnical Investigation ETTL Geotechnical Job No. G 6319-24

Dear Mr. Brooks:

Submitted herein is the report summarizing the results of a geotechnical investigation conducted at the site of the above-referenced project.

If you have any questions concerning this report, or if we can be of further assistance during construction, please contact us. We are available to perform any construction materials testing and inspection services that you may require. Thank you for the opportunity to be of service.

Sincerely, ETTL Engineers & Consultants Inc. Texas Registered Engineering Firm #F3208

Cameron S. Bradbury **Project Manager** 

Owen B. Sanderson Senior Engineer



PDF: Sabine River Authority

Main Office 1717 East Erwin Street Tyler, Texas 75702 Phone: 903-595-4421

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**Geotechnical Investigation** 

# Lake Tawakoni Office Parking Lot

Submitted to

Isaac Brooks Sabine River Authority

Prepared by

ETTL Engineers & Consultants Inc. Tyler, Texas

June 2024

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## **APPENDIX A**

Plate I: Plan of Borings Log of Borings with Laboratory Test Data

## **APPENDIX B**

Laboratory Test Reports

## APPENDIX C

USGS Seismic Design Report

## APPENDIX E

Predicted Engineering Properties of Soils



## **1.0 INTRODUCTION**

This study was performed at the request and authorization to proceed granted by Troy D. Henry with the Sabine River Authority in Point, Texas in accordance with our proposal dated April 30, 2024. The field operations were conducted from December 8<sup>th</sup> to December 16<sup>th</sup>, 2023.

The purpose of this investigation was to define and evaluate the general subsurface conditions of the proposed site located off CR 1480 in Point, TX. A site map depicting the project location is included in **APPENDIX A**, as is a Plan of Borings depicting the boring locations selected to cover the proposed site.

Specifically, the study was planned to determine the following:

- Subsurface stratigraphy within the limits of exploratory borings.
- Classification, strength, expansive properties, and compressibility characteristics of the foundation soils.
- Suitable foundation types and recommended allowable loading.
- Construction related issues that may be anticipated by the investigation; and
- General pavement recommendations for light, medium, and heavy-duty parking, and drive lanes.

The investigation was carried out in three phases: 1) field exploration, sampling, and testing; 2) laboratory testing; and 3) engineering evaluation of data, the details of which are set forth in the following sections.

A variety of tests was performed on selected soil samples to provide the data used to form the basis for the conclusions and recommendations of this study. The conclusions and recommendations that follow are based on limited information regarding site grading. Using a hand-held GPS unit, ETTL located the borings on the ground based on a site plan provided by the client. ETTL did not confirm by a survey that the locations indicated on the Plan of Borings, or the elevations stated herein, accurately reflect the locations on the ground.

## 2.0 PROJECT DESCRIPTION

The proposed project consists of removing the proportions of the existing asphalt pavement adjacent to the maintenance shop and replacing it with new concrete pavement. A new car parking canopy extension is proposed for the east side of the main building. Preliminary grading plans were not provided, the final grade is anticipated to be near the existing grade at the time of the field investigation. It is our understanding that the proposed foundation for the canopy will be shallow cylindrical footings bearing in the native subgrade.

## 3.0 SITE DESCRIPTION

The site is a developed area with buildings and existing asphalt paving.



## 4.0 FIELD OPERATIONS

The subsurface conditions of the proposed parking area were defined by six (6) sample core borings drilled to 5 feet and two (2) sample core borings drilled to 15 feet for the canopy extension. The field boring logs were prepared as drilling and sampling progressed. The plan of borings and final logs are included in APPENDIX A. Descriptive terms and symbols used on the logs are in accordance with the Unified Soil Classification System (ASTM D 2487). A reference key is provided on the final page of this report. track-mounted drill rig utilizing dry auger drilling procedures was used to advance the borings. Soils were sampled by means of a 1 3/8-inch I.D. by 24-inch long split-spoon sampler driven into the bottom of the borehole in accordance with ASTM D 1586 procedures. In conjunction with this sampling technique, the Standard Penetration Test was conducted by recording the N-value, which is the number of blows required by a 170pound weight (TxDot Hammer) falling 24 inches to drive a split-spoon sampler 1 foot into the ground. For very dense strata, the number of blows is limited to a maximum of 50 blows within a 6-inch increment. Where possible, the sampler is "seated" six inches before the N-value is determined. The N-value obtained from the Standard Penetration Test provides an approximate measure of the relative density that correlates with the shear strength of the soil. The blow count obtained was multiplied by 1.25 to conservatively convert the N values from the automatic TxDOT hammer to the standard  $N_{60}$  value for use in correlations to predict engineering properties ( $N_{60}$  < 100). The disturbed samples were removed from the sampler, logged, packaged, and transported to the laboratory for further identification and classification.

Soils were also sampled by means of a 3-inch O.D. by 24-inch-long thick-walled Shelby Tube sampler (thin-walled samplers cannot be used to sample the stiff to hard clays encountered). Using the drilling rig's hydraulic pressure, the sampler was pushed smoothly into the bottom of the borehole. Where possible, the consistency of these samples was measured in the field by a calibrated pocket penetrometer. These values, recorded in tons per square foot, are shown on the boring logs. Such samples were sealed to maintain *in situ* conditions and packaged for transport to the laboratory where they were extruded and logged.

While on-site, Dynamic Cone Penetrometer (DCP) tests (ASTM D 6951) were also performed. This test consists of an 8 kg (17.6 lb) weight dropping a distance of 575 mm (22.6 in) and striking an anvil assembly attached to a cone tip. For softer soils, a 4.6 kg (10.1 lb) weight can be used. The penetration, in millimeters, of the cone tip is recorded along with the number of blows of the weight and converted to a DCP index measured in millimeters per blow. This data is then used to determine an in-situ CBR value for the subgrade soils based on published correlations between in-situ CBR and the DCP index.

All boreholes were backfilled with cuttings after collecting final groundwater readings. Samples obtained during our field studies and not consumed by laboratory testing procedures will be retained in our Austin office for 60 days. To arrange storage beyond this point in time, please contact the Austin office.



## 4.1 Groundwater Observations

Seepage and groundwater were not observed in open bore holes during or after the completion of drilling, as noted in **TABLE 4.1**.

TABLE 4.1 – Boring Identification				
Boring	Depth (ft.)	Structure	<sup>2</sup> Boring Elevation	<sup>1</sup> G.W. Depth (ft.)
C-1	15	2	NG	Deptil (It.) Dry
C-2	15	Canopy	NG	Dry
P-1	5		NG	Dry
P-2	5		NG	Dry
P-3	5		NG	Dry
P-4	5		NG	Dry
P-5	5		NG	Dry
P-6	5		NG	Dry

Notes:

1) Observed groundwater depth at the time of completion or thereafter, see boring logs in APPENDIX A.

2) NG = Not Given

Data regarding the groundwater level was obtained by observations in open boreholes. At best this provides only an approximation of the phreatic surface at the time of drilling. *The phreatic surface that should be considered for the design of this project may vary significantly from that which was observed in the borings due to the following factors*:

- The characteristics of the soil profile may have prevented the water level in the borehole from rising to the phreatic level during the time period of observation.
- A given borehole may not intercept groundwater bearing zones (i.e., the groundwater is perched or travels in seams or fissures that are not continuous over the entire site).
- Groundwater may only be perched in pockets above local aquicludes, but the distribution of borings is not generally adequate to confirm this with a high level of certainty.
- Groundwater level varies seasonally and with rainfall.
- Rotary wash drilling methods introduce fluid into the boring that often makes it impossible to distinguish between groundwater and drilling fluid.

•

If the designer believes that the level of groundwater could significantly impact the project, then ETTL should be contacted to develop a plan for piezometer installation and monitoring to assess the groundwater levels more accurately at the site.

## 5.0 LABORATORY TESTING

Upon return to the laboratory, a geotechnical engineer visually examined all samples, and several specimens were selected for representative identification of the substrata. By determining the Atterberg liquid and plastic limits (ASTM D 4318) and the percentage of fines passing the No. 200

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sieve (ASTM D 1140), field classification of the various strata was verified. Also conducted were natural moisture content tests (ASTM D 2216).

Laboratory tests were conducted on samples recovered from the borings to evaluate the physical and engineering properties of the different strata and were performed in general accordance with applicable ASTM procedures. The number and type of tests performed for this study are listed in the table below. Details regarding these tests are included on the logs (**APPENDIX A**) and in the Laboratory Test Reports located in **APPENDIX B**.

TABLE 5.0 – Soil Laboratory Testing Procedures			
Laboratory Test	Test Method	Number of Tests	
Dry Sieve Analysis (% Passing No. 4)	ASTM D 6913	41	
Dry Sieve Analysis (% Passing No. 40)	ASTM D 6913	41	
Washed Sieve Analysis (% Passing No. 200)	ASTM D 1140	41	
Atterberg Limits (Liquid & Plastic Limits)	ASTM D 4318	37	
Moisture Content by Dry Weight	ASTM D 2216	41	
Unconsolidated-Undrained Triaxial Compression Test for Cohesive Soils	ASTM D 2850	1	
Sulfates	ASTM C 1580	1	

A summary of the tests conducted for the project is provided in the table below:

The above laboratory tests were performed in general accordance with applicable ASTM, U.S. Army Corps of Engineers procedures, and/or generally accepted practice. It should be noted that reference to ASTM or other standard procedures does not imply that all cross-referenced procedures in ASTM or other standards have been used, or that all ASTM or other procedures used have been followed exactly. Only those ASTM or other standard procedures and/or portions of procedures, which, in the professional judgment of the geotechnical engineer of record for this report, are applicable, appropriate, and necessary for this particular project, have been used or followed.

## 5.1 Unconsolidated/Undrained Triaxial Compression

Strength and deformation characteristics of the cohesive strata were evaluated by conducting unconsolidated, undrained triaxial compression tests (ASTM D 2850) on selected field samples obtained with the Shelby tube sampler. In this type of compression test, confining pressures were chosen that approximate in situ effective pressures at the sample depth below existing ground, and specimens were tested at in situ moisture content. The specimens were axially loaded until failure occurred. The undrained shear strength (or cohesion) is equal to one-half the peak compressive stress. In hard clays, it is very difficult to obtain specimens while maintaining the insitu condition representative of the clay mass. This phenomenon is considered when evaluating test data from such specimens. Moisture content (ASTM D 2216) and dry density (ASTM D 7263) are determined as part of this test.



## 5.2 Sulfate Testing

Soluble Sulfate Contents were measured to help identify the sulfate-induced heaving potential of the soils. Sulfate-induced heaving can cause detrimental volumetric changes to a subgrade modified by calcium-based stabilizers (lime treatment). Air-dried soil was prepared through the No. 40 sieve and then diluted with distilled water. After 16 hours the soil particles were filtered out and the sulfate concentration was measured by the colorimetric method.

TABLE 5.2 – Sulfate Test Results			
Boring Depth (ft) Sulfate Content (PPM)			
P – 3	1 – 3	396	
P – 5	1 – 3	292	

## 6.0 FOUNDATION SOIL STRATIGRAPHY AND PROPERTIES 6.1 Site Geology

According to the Bureau of Economic Geology at the University of Texas at Austin, Geologic Atlas of Texas, Tyler Sheet, the proposed site is located in the Wills Point Formation (Ewp).

The Wills Point Formation (Ewp) of Midway Group outcrops the proposed site. The upper mapped unit is comprised of the Tehuacana Member; the lower mapped unit is comprised of Pisgah and Littig Members, undivided. Tehuacana is described as limestone, glauconitic, hard, indurated, grayish white, interbedded with gray marl, forms crest of prominent northwest-facing cuesta; as thick as 30 ft., absent south of Brazos River. Pisgah is described as sand and clay; sand, glauconitic, argillaceous, poorly sorted, greenish gray; clay, sandy, silty, medium gray to black. Littig is described as sand and clay; sand, very glauconitic, greenish-black; clay, sandy, phosphatic nodules and pebbles present; weathers to yellow and yellowish-brown soil. Undivided Pisgah and Littig 10-120 ft. thick, thins locally, form mid-slope of cuesta formed by Tehuacana.

For more information, please refer to the National Geologic Map Database and the Geologic Atlas of Texas: <u>https://txpub.usgs.gov/txgeology/</u>

## 6.2 Site Stratigraphy

A soil profile comprised of the strata listed below was developed for engineering property purposes to conservatively represent the soil layering generally characteristic of the site. Samples obtained during our field investigation indicate a change in the geology from the soils found at the proposed middle school and the football field. The classifications are based on weathering, depositional environment, mineralogy, color change, lithology, and structure. Detailed on the boring logs in **APPENDIX A** are the specific types and depths of the various soil strata



encountered. The logs show defined boundaries between various soil types, but in reality, the transition between types is generally gradual.

- Stratum 1
  - Medium stiff to very stiff lean and fat clay (CL / CH) with an average thickness from 0 to 8 feet.
    - Borings C-1 and C-2 show a lean clay with sand (CL) in the top 3 feet.
- Stratum 2
  - Hard to very hard fat clay (CH) from 8 to 15 feet.

The depths for each stratum provided above are an approximate average and can change between boreholes.

## 6.3 PREDICTED SOIL PROPERTIES

Due to the non-homogeneous nature of the soil and the necessarily limited data, the issue of assigning quantitative design parameters for the various characteristics of a soil mass is a matter of interpretation. In assessing shear strength along a failure surface that passes through a large mass, it is reasonable to expect that strength variations will be encountered along any potential surface. Where data are sufficient, we believe that it is overly conservative to take the lowest test data values as representative of the characteristics of a soil mass. On the other hand, using average values could be unconservative. How we recommend selecting appropriate values to use is explained below.

## 6.3.1.1 Determining Representative Properties

There is insufficient data (i.e., less than 30 data points for a given parameter for a given soil layer) to warrant a rigorous statistical analysis. Experience has also shown that the average (i.e., best fit to the scattered data) can be unconservative for soils that are not homogeneous (e.g., randomly variable degrees of sand content). We have adopted what we call a P25/P75 approach (as originally promulgated by George Sowers) as an appropriate means for dealing with random variation in soil masses. The average of all applicable test results averaged with the lowest value is termed the "P25" value. The average of all applicable test results with the highest applicable value is termed the "P75" value. Rather than use the worst-case situation when sufficient data are available, we have used either the P25 value (when a low result would be conservative) or the P75 value (when a high result would be conservative) to predict parameters that are used to quantify the behavior of the soil mass. This procedure is only used when the variation in the data is anticipated to be spatially random. If there is a discernible pattern to the variation of the data (e.g., shear strength tends to be softer in low areas) then the data are grouped in accordance with the pattern prior to applying the method stated above (i.e., data are only averaged within groups).

Listed in **TABLE 6.2.1, APPENDIX E** are the soil strata with the predicted P25 and the P75 (as appropriate) engineering properties selected to be applicable throughout the project. Note that properties in isolated situations may be adjusted more favorably when considering the specifics of the situation (contact ETTL for further information, if desired). These properties are derived



from our testing of the soils as well as our experience with the soils in question together with published correlations.

## 6.4 Behavior of Expansive Soils

Expansive soils can be any of the following soil types: Clayey Sand (SC), Lean Clay (CL), or Fat Clay (CH), which exhibit the ability to change volume (shrink or swell) with the addition or subtraction of moisture. Expansive soils such as are found at various depths throughout the soil profile swell when they absorb moisture and shrink as they dry. Structures placed on these soils move up and down with such volume changes of the soil. When expansive soils are covered by an impermeable surface such as a structure or pavement, seasonal moisture fluctuation at the interior of the covered area tends to be reduced or eliminated due to the lack of exposure to natural wetting and drying conditions (i.e., wind, rain, sun, vegetative, etc.). At the perimeter of the structure, however, infiltration into the foundation soils from surface drainage could lead to local swelling of the clays (if they were dry at the start of construction) resulting in tilt or distortion of the foundation. Where areas immediately adjacent to the structure are paved both the risk of swelling due to excess moisture absorption and shrinkage due to moisture loss are reduced significantly.

## 6.4.1 VERTICAL HEAVE PREDICTIONS

The amount of potential heave to which a structure may be subject depends on the thickness of the expansive soil beneath the footprint and the variation of Plasticity Index (PI) in that thickness. In any given area of the project, borings indicate significant variability in the degree of expansion potential, depending on the finished grade as well as the moisture content at the time of construction. Consequently, we provide herein a prediction of potential heave based on the worst-case boring in the area.

The assessment of the impact of expansive soils given below is predicated on soil moisture change that is a result of normal climatological fluctuation only. Factors such as poor drainage and consequent ponding water, plumbing leakage, excavation details (e.g., permeable backfill in trenches or beneath structures), and vegetation (trees and shrubs) can result in moisture changes (and consequent swelling or shrinkage) outside the ranges predicted herein. The predicted heave is also the predicted differential movement that could be experienced by a lightly loaded slab and/or foundation placed on native grade.

The actual movement experienced by a given portion of the structure is dependent on a complex interaction of the various factors noted above. The accuracy of predicted movement is determined by how well the prediction accounts for these factors. The TxDOT PVR method is widely accepted for the prediction of shrink/swell movement potential but is derived from empirical data and established correlations with Atterberg Limits.

## 6.4.1.1 Potential Vertical Rise (PVR)

One commonly used method for quantifying the potential for subgrade movement at any given location is to calculate the Potential Vertical Rise (PVR) (TxDOT method -Tex 124 E modified). This calculation considers the inter-relationship between depth, Atterberg Limits (LL & PI), and



fluctuations in soil moisture. The maximum potential shrink/swell, PVR, at various depths, is predicted in **TABLE 6.3.1** below. These calculations are based on assumed moisture conditions (as defined by the PVR method) and an estimated seasonal moisture fluctuation zone of approximately 10 feet. Footings bearing more than 5 feet below grade at predicate to have a PVR of 1 inch.

TABLE 6.3.1 - Predicted Potential Vertical Rise (Canopy)			
Depth Below Existing Grade (ft)	PVR (inches)		
Surface	2.3		
2.0	1.9		
3.0	1.8		
4.0	1.4		
5.0	1.0		

## 6.4.2 EXPANSIVE SOIL RISK ASSESSMENT

Risk and cost are inversely related, and a decision must be made by the owner as to the best approach when weighing the risk of detrimental foundation soil movement against the cost of a foundation and floor system that either isolates the structure from such movements or reduces the effect of such movements to a tolerable level. When expansive soils are present at a given site, the risk of soil movements detrimental to the building structure and function needs to be mitigated. A system utilizing a structural slab suspended above a void space and supported on deep foundations can virtually eliminate the risk but is also relatively costly. Conversely, a floor slab placed on a prepared subgrade would likely be the least costly approach but would also be more susceptible to damage from foundation soil movements. Since the optimum approach is rarely immediately apparent, we provide the following information as an aid in dealing with the risk aspect of various approaches.

Many factors must be considered in assessing the risk of shrink/swell behavior including:

- 1. Soil characteristics (Atterberg Limits, % fines clay/silt)
- 2. The thickness of various soil layers and depth below the ground surface
- 3. Soil layer moisture content at the time of construction is relative to moisture content at the time of testing and relative to the maximum attainable during swelling.
- 4. Restraint effect of overburden and/or foundation stiffness and loads on heaving
- 5. Factors that contribute to changes in soil moisture content including:
  - a. Rainfall
  - b. Drainage characteristics immediately adjacent to the structure
  - c. Desiccation effects of sun, wind, and vegetation (such as trees and shrubs)
  - d. The seasonal depth of moisture penetration and exfiltration

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- e. Exposure to, or isolation from, drying or wetting effects both during construction and after completion
- f. Landscaping and irrigation
- g. Utility trench construction
- h. Plumbing leaks

When we speak of foundation movements, we consider them as "potential" movements that may, in fact, only partially, or even never occur. The measures recommended in this report are intended to reduce the risk of exceedance of the predicted potential movements. It is the usual case that if these measures are properly implemented, structure performance is satisfactory. However, sometimes conditions outside the scope of this study (some of which are noted elsewhere herein) can result in excessive movement and structure distress.

Actual vertical change in soil thickness (i.e., heave or shrinkage) is directly related to the change in soil moisture content, so that if the moisture content change can be limited, the heave potential is reduced proportionally. However, moisture change is the hardest variable to assess and control. The perimeter areas of structures are typically the most susceptible to moisture change factors related to natural climate variations as well as the other factors listed in Item 5, above. The main risk of moisture fluctuation for interior areas, however, is mainly related to Items 5e (during construction), 5g, and 5h (post-construction).

The performance of floor slabs placed on the native ground or prepared subgrade (i.e., undercut and replacement with select fill or moisture conditioned soils) is dependent on the accuracy of the shrink/swell predictions and our understanding of the finished grades. Because current prediction methods cannot precisely account for all the factors involved, as noted, the slab-on-grade option carries with it a greater degree of risk of distress than the structural floor option. The recommendations provided in this report will help to mitigate the risk, but not eliminate it.

## 6.5 Seismic Site Classification

IBC 2015 requires density/shear modulus information extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile with borings that are drilled to a maximum of 15 feet below the existing grade. Consequently, we have assumed that the density (blow count) of the soil/rock encountered at the terminal depth is representative of the profile to a depth of 100 feet. If the seismic site class definition is critical to the design, this assumption should be confirmed by further testing. Based on the site class noted below we do not believe further testing would benefit an improved site classification.

Based on the 2015 IBC, the seismic site class definition is **Class D** "**Stiff Soil**", and the Risk **Category is II** (assumed). California's Office of Statewide Health Planning and Development (OSHPD) provides an online tool that calculates the seismic design values based on the overall project and site information listed above. A printout of this report is provided in **APPENDIX C**. ETTL does not warrant the accuracy of this report and it is presented to the client for information purposes only.



For more insight regarding the information, we have provided please visit: <u>https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards</u>

## 7.0 FOUNDATION DESIGN RECOMMENDATIONS

Two independent design criteria must be satisfied in the selection of the type of foundation to support the proposed structure. First, the ultimate bearing capacity, reduced by an appropriate factor of safety (usually taken as 3 for DL plus sustained LL and which varies depending on the loading case) (or resistance factor if LRFD analysis), should not be exceeded by the bearing pressure (factored for LRFD analysis) transferred to the foundation soils. Second, predicted total and differential vertical movements due to consolidation and/or expansion of the underlying soils during the operating life of the structure(s) should be within tolerable limits. For most structures similar to that of the current project, 1 inch of predicted total settlement or heave is widely considered an acceptable target for design. *It should be noted, however, that if the differential settlement or heaving of this magnitude were actually to occur, distress including cracks in walls and floors and door frame distortion, etc. can be expected at least in some circumstances.* 

## 7.1 General Considerations

It is our understanding that the proposed foundation for the canopy will be shallow cylindrical footings bearing 4 feet into the native subgrade. These footings should be designed for an allowable end-bearing capacity as detailed in **Section 7.2.1**. Due to the expansive native of the soil encountered, the shallow footings will be subject to vertical movements as described in **Section 6.3.1**. Uplift resistance due to side resistance, and lateral resistance due to passive pressures, should be ignored where shallow cylindrical footings are subject to moisture fluctuation which would allow for the expansive soil to separate from the foundation.

## 7.2 Shallow Spread Footings

Qualified personnel should inspect all footing excavations to ensure that the subgrade is composed of firm, undisturbed native soil or properly compacted select fill as recommended in this report. Water and/or loose material in footing excavations should be removed before the final shaping of the footing excavation and placement of concrete.

## 7.2.1 BEARING CAPACITY

Footing should be designed to bear in properly compacted select fill at a minimum depth of 2 feet below the finished subgrade or adjacent exterior grade (whichever is deeper). Listed in the table below are the recommended gross allowable bearing pressures for the various types of subgrade modifications, footing widths, and soil bearing stratum. These allowable pressures incorporate a safety factor relative to shear failure of the soil of at least 3 and may be increased up to 33% for intermittent loads such as wind.



TABLE 7.2.1 - Bearing Capacity of Shallow Footings FS = 3		
Bearing Material or Stratum Isolated footings (psf)		
Native subgrade or Compacted Select Fill	2,000	

Note:

• We predict the total settlement to be less than 1.0 inches, based on the size and loading of the canopy footings.

Based on the soil types beneath the canopy footings, the relative density of the soil/rock observed groundwater levels, and the anticipated loads on the various foundation elements, the magnitude of long-term settlement is not anticipated to be significantly more than the immediate settlement. Because settlement is directly related to the size of the loaded area, we placed limits on the maximum footing widths assuming the footings have a demand-bearing pressure equal to the maximum allowable. The actual total settlement is calculated based on the unfactored working footing pressure (i.e., unfactored dead load plus unfactored sustained live load), it is often the case that the unfactored working pressure is much less than the factored demand loading and the maximum footing width recommended can be exceeded and still maintain settlements of 1 inch. However, it is impractical for ETTL to assess all footing sizes and loading combinations at this phase of the design. Large heavy-loaded footings would require a case-by-case analysis to better assess the total settlement.

## 7.2.2 ECCENTRICALLY LOADED FOOTINGS

Allowable loading for eccentrically loaded footings is proportional to the degree of eccentricity and is lower than for a concentrically loaded footing. Equivalent allowable vertical uniform pressure (i.e., ignoring the effects of overturning moments) on an eccentrically loaded footing may be computed in accordance with the following:

Where:

above.

q<sub>a</sub> = allowable uniform pressure for a concentrically loaded footing as given

Rex	=	reduction coefficient for eccentricity about the x axis
	=	$1 - 2 * e_x/B_x$ for cohesive soils (CL & CH)
	=	$1 - (e_x/B_x)^{0.5}$ for cohesionless soils (SM, SC, ML)
Rey	=	reduction coefficient for eccentricity about the y axis
	=	$1 - 2 * e_y/B_y$ for cohesive soils (CL & CH)
	=	$1 - (e_y/B_y)^{0.5 \text{ for}}$ cohesionless soils (SM, SC, ML)
ex, ey	=	eccentricity in the x and y direction, respectively
Bx, By	y =	footing dimension in the x and y direction, respectively

Use the predominant soil type in the zone that is one footing width beneath the footing to calculate the reduction coefficient. If no one type is predominant, then use a weighted average based on the relative thicknesses in this zone. Total allowable vertical load with eccentricities ex and ey

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may be found by multiplying the gross area of the eccentrically loaded footing by  $q_{ae}$  as determined above.

## 7.2.3 SLIDING RESISTANCE FOR FOOTINGS ON GRADE

The ultimate (nominal) sliding resistance ( $R_{\tau}$ ) should be checked for both drained and undrained loading conditions using the parameters listed in the **Predicted Soil Engineering Properties TABLE 6.2.1**, for the appropriate bearing stratum and the following formulae for nominal (unfactored) resistance:

For drained loading:

**R**<sub>τ</sub> = V \* tan δ

• V = total un-factored vertical force on the footing base for the given loading condition tan  $\delta$  = tan  $\phi$  ( $\phi$  = drained friction angle of the soil for the case where concrete is cast against the soil. Use tan  $\delta$  = 0.8 \* tan  $\phi$  for precast concrete)

For undrained loading:

 $\mathbf{R}_{\mathbf{T}} = \mathbf{c}$ ; or the lesser of:  $\mathbf{R}_{\mathbf{T}} = \mathbf{c}$  vs.  $\mathbf{R}_{\mathbf{T}} = 0.5 * V$ 

- c = undrained shear strength (cohesion), also designated S<sub>u</sub>
- The nominal resistance should be factored in as appropriate.
- 6" (min) of compacted, well-graded granular material is placed beneath the footing (where suitable) use

Ultimate (nominal) passive resistance  $P_p$  of the soil loaded by a footing block face should be computed by the following formula for both drained and undrained conditions and selecting the most critical condition:

 $\mathbf{P_p} \text{ (drained)} = \gamma^*(K_p)^* z + 2^* c' (K_p)^{0.5} \qquad (\text{second term often neglected}) \\ \mathbf{P_p} \text{ (undrained)} = \gamma^*(K_p)^* z + 2^* c (K_p)^{0.5} \qquad (\text{usually reduces to: } \gamma^* z + 2^* c) \\$ 

- $\gamma$  = effective unit weight
- $K_p$  = Passive pressure coefficient =  $(Tan(45+\phi'/2))^2$  (equals 1 for undrained  $\phi=0$  condition)
- $\phi'$  = Effective angle of internal friction.
- $\Phi$  = Undrained angle of internal friction, generally = 0
- c,' c = drained/undrained cohesion
- z = depth where pressure is determined

The appropriate parameters to be used in the above equation are to be selected from **TABLE 6.2.1**, for the appropriate loading condition that controls (i.e., long-term(drained)) or short-term (undrained)) for the soil against the face of the footing. A significant amount of lateral movement is required to fully mobilize ultimate passive pressure (as much as 6% of the depth to the base of



the loaded face). To limit the lateral movement to about 1% (of the depth to the base of the loaded face) a factor of about 0.5 is typically recommended to reduce the above-computed resistance to the available mobilized nominal (un-factored) passive resistance given lateral displacement restrictions.

Passive resistance as computed above assumes that the footing excavation can be constructed in such a manner as to provide solid contact of the side of the concrete with the undisturbed sides of the excavation (which may be impractical in some situations). *Caution*: Lateral resistance against a vertical face should only be assumed where construction can be controlled to assure that the footing is cast against undisturbed earth or backfill between the excavation face and the footing edge is placed under density-controlled conditions (backfill should be placed to 100% ASTM D698). It should be noted that such heavy compaction against a wall face will result in earth pressures against the wall exceeding the usually assumed active or at-rest pressures. *Also, the temporary excavation face needs to be nearly vertical and extended to the bottom of the footing elevation*. The portion of the sides of the excavation for the footing that is comprised of fat *clay exposed to wetting or drying action and that is within 5' of the finished ground surface should be neglected with respect to computing passive resistance to account for possible softening or <i>shrinkage of the zone*.

## 7.3 Under-Reamed/Belled Piers

Drilled shafts may be under-reamed (belled) to anchor against uplift. The belled piers should bear in undisturbed native soil a minimum of 10 feet and should be proportioned using a gross allowable end bearing of 6,000 psf. These allowable values incorporate a factor of safety equal to 3. The recommended bearing values are applicable only below the minimum 10 feet of penetration noted above. These values may be increased by 33% when considering intermittent loads such as wind or seismic. Settlement (due to imposed load only) for piers with a sustained full design load is predicted to be 0.5% to 1% of the pier tip diameter. The recommended end bearing values are based on a minimum center-to-center pier spacing of three times the average adjacent pier diameters. The minimum side slope of bells should be 60 degrees (with the horizontal) and the maximum ratio of the bell to pier diameter should be 3:1. The spacing of the piers is limited by the average of two adjacent bell diameters (plus 2 feet) to prevent the bells from overlapping. A minimum shaft size of 18 inches is recommended to facilitate proper concrete placement. Further guidelines for the construction of drilled piers are provided in Section 7.3.9. Since moisture migration to the base of a drilled shaft (usually along the shaft perimeter surface) could lead to heaving, these construction guidelines must be followed to reduce the risk of such shaft movement. Piers with lateral loading should be designed per Section 7.3.7.

## 7.3.1 UPLIFT RESISTANCE OF BELLED SHAFTS

In some cases, the shafts may need to be belled to resist uplift. For cases where the top of the bell is at least  $2.5^*d_b$  below the ground surface, the ultimate uplift resistance provided by the soil surrounding a belled shaft,  $Q_u$  (kips) may be determined by:

$$Qu = 7.07 * c * (db^2 - ds^2)$$

Where:

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- c = cohesion (ksf) (avg in the zone from the base of the bell to 2\*d<sub>b</sub> above the base (use 2 ksf in this instance)
- d<sub>s</sub> = diameter of the shaft (ft)
- d<sub>b</sub> = diameter of the bell (ft)

For cases where the top of the bell is shallower than  $2.5^*d_b$  below the ground surface, the ultimate capacity may be assumed to vary linearly from 0 at the ground surface to  $Q_u$  as determined above at  $2.5^*d_b$ .

The ultimate uplift resistance as determined above should be divided by a safety factor (say 2 to 3) and the resultant allowable uplift resistance should be compared to the design uplift load (minus the shaft weight if it is not otherwise accounted for) to verify that the allowable resistance is equal to or greater than the design load (i.e. the uplift due to transient loads applied at the top and sides of the shaft).

The above procedure is only intended to predict uplift capacity based on the characteristics of the soil surrounding the pier. The designer must verify that the shaft reinforcing (for prevention of detachment of the bell from the shaft) and the thickness of the bell (for prevention of shearing off of the edge of the bell) are also adequate to safely carry the uplift load.

## 7.3.1 SOILS INDUCTED UPLIFT LOADS

Where expansive soils remain within the active zone (i.e., the upper 10' of the soil profile) beneath the structure footprint, drilled shafts could experience tensile loads as a result of post-construction heave in the surficial clay soils in which the shaft is embedded. The magnitude of these loads varies with the shaft diameter, soil profile at the shaft location, soil parameters, and particularly the in-situ moisture levels at the time of construction. The active zone is predicted to be about 10' deep and all shafts must be anchored below that depth as they may experience uplift from the native clay soils throughout the active zone. The reinforcement quantity should be adequate to resist tensile (uplift) forces resulting from soil adhesion equal to 1,300 psf (ultimate value) acting over the upper 10 feet of the pier shaft perimeter that is in contact with native expansive soils (i.e., adhesion in zones where select fill or moisture treated clay replaces native clay may be assumed equal to 0 for the purpose of heave evaluation).

Uplift due to swelling of the soil should be analyzed separately from (i.e., not in addition to) uplift resulting from other loads (e.g., wind or seismic). A check should be made to verify that the *ultimate* side resistance of the portion of the shaft embedded below 10' is at least equal to the induced heave above that level (i.e., Safety Factor of 1 in this instance) *reduced by the un-factored dead load on the shaft* and that the shaft reinforcement is adequate to prevent tensile failure at the active zone depth. The ultimate side resistance of the appropriate design curve in **APPENDIX D**. Subtract the side resistance indicated by the curve at the depth of the bottom of the active zone from the side resistance. This is the predicted *ultimate* side resistance of the portion of the shaft embedded below the active zone and the sum of it plus sustained un-factored dead load below the active zone and the sum of it plus sustained un-factored dead load for the shaft embedded below the active zone and the sum of it plus sustained un-factored dead load for side resistance.



(including shaft weight) should at least be equal to the ultimate heave computed above. Also, if the uplift due to swelling soils is greater than the net uplift resulting from other applied loads, it should be used to check the structural adequacy of the shaft and soil resistance.

## 7.3.2 LATERAL LOADS ON SHAFTS

A lateral load analysis depends on soil properties as well as the stiffness of the drilled shaft being analyzed and, so, entails a cooperative process involving both the structural engineer and the geotechnical engineer. Because of the myriad possible combinations of sizes and loading conditions and the unknown constrictions at any given location, the L-Pile analysis has not been performed at this time. ETTL can assist with lateral load analysis once details regarding shaft diameter, reinforcing, head fixity, and lateral load have been preliminarily determined and if such conditions are deemed to warrant more detailed analysis.

Programs such as the L-Pile program by Ensoft calculate the stiffness of drilled shafts accounting for reinforcement as well as cracking (i.e., stiffness reduction) for each combination of loads. Soil parameter values that should be used in a lateral load analysis are listed in **TABLE 6.2.1**, **Predicted Soil Engineering Properties**. For piers embedded in fat clay (if any) that is exposed to drying action (e.g., piers at the edges of pier caps), we recommend that the portion of the shaft that is 5' or shallower below the finished ground surface adjacent to the cap be neglected for lateral support in order to help account for possible shrinkage of the clay away from the sides of the shaft in the upper zone.

Analyses of both the fixed head and free head conditions can be made. The analysis also depends on the percentage of steel reinforcement, as well as the magnitude of the vertical load to use in conjunction with the maximum horizontal load. The critical combination of loads yielding the maximum horizontal deflection consists of the maximum horizontal load together with the minimum vertical load. This combination results in the severest moment and least effective moment of inertia (due to the cracking of the section). The L-Pile program considers the soil stiffness as well as the shaft stiffness under whatever combination of vertical load, lateral load, and the moment the user specifies.

ETTL can assist with lateral load analysis once details regarding shaft diameter, reinforcing, head fixity, and lateral load have been preliminarily determined and if such conditions are deemed to warrant more detailed analysis.

## 7.3.3 DRILLED PIER CONSTRUCTION ISSUES

The construction of all drilled piers should be monitored by personnel familiar with their installation. As a minimum, it is recommended that a representative of this firm be present before and during drilled pier construction in order to monitor test piers and production pier installation procedures. Free water and/or loose material at the base of excavations should be removed, as appropriate, prior to the placement of concrete.

Groundwater observations indicate that the shaft tip depth will be above the water table and that the dry auger method of construction should be feasible. In any case, we recommend temporary



casing and/or slurry drilling procedures be included in the contract documents. Free water and/or loose material at the base of excavations should be removed with an approved "Muck Bucket" prior to the placement of concrete. Additional concrete can be pumped via a tremie pipe placed at the bottom of the shaft to displace any water accumulated in the bottom of the shaft to the surface. At no time should concrete free fall into a shaft that contains water. In any case, it is recommended that contract documents provide alternates with or without casing and dry or slurry displacement construction procedures.

Concrete should be designed and placed with a relatively high slump (7 to 9 inches) to provide solid contact of the shaft with the side of the hole. Close engineering supervision is essential during the installation of the foundation units in order to ensure that construction is performed in accordance with the plans and specifications. Also, to help ensure proper construction of the drilled piers, close coordination between the drilling and concrete operations is considered to be of primary importance. Concrete should be placed at each drilled pier location *immediately* after the completion of drilling. Concrete placement in the shaft should be at a rate of at least 40' of shaft per hour. *In no case should a shaft remain open overnight.* 

Construction documents must specify that all foundation units should be constructed in accordance with ACI 336.1 "Standard Specification for the Construction of Drilled Piers," latest edition. Only contractors familiar with and competent in the employment of these methods should be considered for the work. The actual capacity of the completed foundation is directly related to the degree of conformance to correct construction procedures.

## 8.0 EXCAVATION AND SITE WORK

To validate the design assumptions given above regarding allowable foundation loads, and, in order to provide a serviceable floor system (within the limitations stated above), the subgrade of the building must be properly prepared. The following procedures are recommended as a minimum:

## 8.1 Site Preparation to Reduce PVR to 1.0 inches

The following over-excavation is recommended if the estimated PVR in **Section 6.4.1** is not suitable to the proposed canopy design. Limits of the base of the over-excavation should extend beyond building and/or footing lines a distance of 3' and should taper up to finished grade at a 1:1 slope.

- Remove the surficial vegetation and organic topsoil. Tree root zones (typically 3 to 5 feet deep) and abounded utilities should be completely removed and replaced by select fill. Any areas disturbed by site preparation/demolition should be undercut and replaced with select fill.
- Over excavate to a depth of <u>existing grade minus 5.0 feet</u> and replace it with select fill to reduce the PVR to 1.0 inch or less. Extend the over-excavation a minimum of 3 feet beyond the footing lines.

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- Scarify the exposed subgrade to a depth of 8 inches, adjust the moisture content to, and maintain it within a range of optimum to optimum +4% and recompact to a density of at least 95% of the maximum density defined by ASTM D 698 (Standard Proctor). Maintain specified moisture content until the subgrade is covered with fill or slab.
- Place select fill to finished slab subgrade. Specifications for the placement of select fill are covered below.

## 8.2 Select Fill

Select fill shall consist of homogeneous soils (i.e., not sand with clay lumps) classifying as SC or CL, free of organic matter and rocks larger than 3 inches in diameter and possessing an Atterberg plasticity index (PI) of 8 to 20, with a liquid limit of 45 or less and a percent passing the #200 sieve between 30 and 75. Permeability should not exceed 1 x  $10^{-5}$  cm/sec at in-place density (testing to confirm is recommended). These characteristics are chosen for the select fill in order to help limit the potential for surface water infiltration that would become trapped in the fill on top of the expansive clay, leading to an increased potential for moisture-related instability and heave.

Atterberg limits testing of the fill at a rate of 1 test per 500 cubic yards of fill placed (minimum 1 test per fill area per lift and as visual changes occur) is recommended to verify that fill specifications are met. The material should be placed in the following manner:

- Prepare the subgrade in accordance with the recommendations discussed elsewhere herein. Sites that slope more than about 15% should be benched with 8-foot-wide benches prior to placing fill.
- Place subsequent lifts of select fill in thin, loose layers not exceeding 9 inches in thickness to the desired rough grade and compact to a minimum of 98% of the maximum density defined by ASTM D 698 (Standard Proctor). Maintain moisture within a range of optimum to optimum +4%.
- Conduct in-place field density tests at a rate of one test per 3,000 square feet of lift area for every lift with a minimum of 2 tests per lift. *Density testing is essential to assure that the soil beneath the structure is properly placed.*
- Prevent the excessive loss of moisture during construction (periodic sprinkling may be required).

## 8.3 Excavation Safety

The Federal Register, Volume 54, No. 209 (Latest Revision), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) contain the "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". The contractor is solely responsible for designing and constructing stable, temporary excavations in accordance with these standards



and should shore, slope, or bench the sides of the excavations as required to maintain the stability of both the excavation sides and bottom. The contractor's "responsible person," as defined in CFR Part 1926, should evaluate the soil exposed in the excavation as part of the contractor's safety procedure. In no case should the height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. Testing to evaluate the stability of slopes created during excavations at this site was beyond the scope of this study.

## 9.0 PAVEMENT RECOMMENDATIONS

General recommendations for the design of *minimal* pavement structures are provided herein for your information. A more detailed pavement analysis would require additional laboratory tests on bulk samples of the materials to be used in pavement construction and is beyond the scope of this investigation. Both flexible and rigid pavement sections are presented. A summary of proposed designs is provided in **TABLE 9.1**, **TABLE 9.2**, and **TABLE 9.3** below.

## 9.1 Pavement Subgrade Preparation

As a minimum, strip the native subgrade to remove topsoil and other deleterious materials. Tree root zones often contain highly desiccated soil that eventually results in heaving after a period of rewetting. The only way to limit this potential is to remove these zones and replace them with select fill. Verify that all stump holes as well as areas disturbed by demolition activity, if any, are cut out and backfilled with properly compacted select fill. The heaving effect can be reduced with good pavement drainage and maintenance. If this is not feasible, then future additional pavement maintenance will probably be necessary.

Cut to the proposed subgrade elevation as required. The exposed subgrade should be proof rolled before compaction or treatment in accordance with TxDOT Item 216 with the exception of roller size. The use of a fully loaded dump truck is recommended. Areas, which prove unstable should be cut out and reworked. In areas that are below finished subgrade elevation or which are to be lime treated, scarify the exposed subgrade to a depth of 8 inches, adjust the moisture content to within a range of optimum to optimum +3%, and recompact to a minimum of 98% of the density as defined by ASTM D 698 (Standard Proctor). For HMAC pavement sections, lime treatment of subgrade that consists of native clay, or native clay fill is recommended as set forth below. Positive surface drainage should be maintained during all phases of construction (especially in low areas) to help keep pavement subgrade in a dry and stable condition.

## 9.1.1 FILL CONSTRUCTION

Fill material to be used beneath areas to be paved may consist of any native soil and should be compacted to a minimum density of 98% ASTM D698 (standard proctor) at a moisture content within the range of optimum  $\pm 3\%$  except for fat clay soils which should be placed at above optimum moisture contents. Lime treatment of the finished subgrade can be omitted where the top 18" of finished subgrade consist of select fill with the following properties: a PI ranging from 8



to 18, a liquid limit  $\leq 40$ , and a percentage passing the #200 sieve  $\leq 40\%$  (this specification is slightly different than the building fill specification).

## 9.1.2 SPECIAL REQUIREMENTS

Islands and irrigated areas adjacent to pavement edges can be a source of pavement problems. Overwatering can lead to infiltration (and consequent destabilization) of flexible base material adjacent to the area. Where a flexible pavement option is chosen, areas subject to overwatering (especially sprinklered islands) should be designed to contain all irrigation water (i.e., prevent leakage out the bottom into adjacent stone base material). An alternative, but less desirable, solution is to replace the flex base in the immediate vicinity of the potential infiltration with full depth Asphalt.

Where trees or shrubbery will be planted or will remain in close proximity to the pavement edge, or where the pavement edge is subject to extreme drying action, deep drying of the subgrade beneath the pavement edge (within root zones of vegetation where present) can lead to cracking of the subgrade and pavement in the vicinity. The only effective way to prevent this sort of distress is to undercut the active clay subgrade and replace it with select fill or prevent drying of the subgrade through the use of moisture/root barriers. The use of a geogrid (Tensar HX5.5) between the crushed stone base and the subgrade can limit the propagation of cracks from the subgrade up into the base. Additional details regarding these measures will be provided upon request.

## 9.1.3 LIME TREATED SUBGRADE

Lime treatment of subgrade should be in accordance with Item 260, "Lime Treatment for Materials Used as Subgrade (Road Mixed)," Texas Department of Transportation *Standard Specifications for Construction of Highways, Streets, and Bridges*, 2014 Edition with the following exceptions:

- Under Article 260.4 (4), "Application," the rate of lime to be applied can be estimated as 35 pounds per square yard worked into the top 6 inches, or 40 pounds per square yard worked into the top 8 inches of finished subgrade. Quicklime, if used, must be hydrated before mixing into the soil.
- The modified subgrade should be compacted under article 260.4 (6) (b), "Density Control," except that it shall be compacted to 95% of Standard Proctor Density (ASTM D698) *at a moisture content well above optimum* to allow for the drying action of the lime.
- Curing procedures should be strictly followed. Traffic on the treated subgrade should be kept to a minimum during curing.
- Prior to use by significant traffic, the treated subgrade should be covered with base, concrete, or some temporary wearing surface to avoid degradation.



## 9.1.3.1 Guidelines for the Treatment of Sulfate Rich Soils

Testing for soluble sulfates was on a limited basis for this project. Test results indicate sulfate concentration is below 3,000 ppm and lime stabilization of the native soils should be feasible. Soils that contain a sufficient quantity of soluble sulfates can cause an adverse reaction when stabilized with lime or cement. This would lead to sulfate-induced heave if lime (or cement) stabilization were to be used. Typically, the possibility of sulfate-induced heave occurs when sulfate contents are above 3,000 ppm (mg/kg).

## 9.1.3.2 Alternatives to Lime Treatment

For the flexible pavement option (only) placing a geogrid (Tensar HX5.5 or equivalent) on the native subgrade prior to placing base material will serve as a substitute for lime treated subgrade.

For the rigid pavement option (concrete) the recommended pavement thickness accounts for an untreated prepared native subgrade. Treating the native clay subgrade with 6% lime to a depth of 6 inches below the ridged pavement is recommended to extend the life of the pavement section. If the subgrade is treated the recommended pavement thickness can be reduced by 0.5 inch. Without a treated subgrade pavement maintenance is vital so the pavement functions as designed. *Property sealing (and resealing overtime) joints and saw cut to prevent water from saturating the untreated subgrade is required*.

## 9.1.4 STABILITY OF FINISHED SUBGRADE

The stability of the finished subgrade should be verified by proof rolling (as specified above) prior to placing base material or surfacing. Unstable areas will need to be cut out and reworked.

## 9.2 Light-Duty Pavements 9.2.1 FLEXIBLE PAVEMENT

The minimum pavement section (and a section commonly used) for light-duty driveways and parking areas consists of 6 inches of crushed stone base with 2 inches of hot mix asphaltic concrete (HMAC). The crushed stone base should comply with Type A, Grade 1/2, Item 247 of the *Texas Department of Transportation (TxDOT) 2014 Standard Specifications for Construction of Highways, Streets, and Bridges.* Compaction of the stone base should be to a minimum of 95 percent of ASTM D 1557 (modified proctor) maximum density at optimum moisture ±3 percent. Asphaltic concrete surfacing should comply with the requirements of Type D, Item 340 of the TxDOT Specifications, and should be compacted to a density of 92 to 94 percent of the maximum theoretical density.

## 9.2.2 RIGID PAVEMENT

The performance of concrete pavement is dependent on many factors including weight and frequency of traffic, subgrade conditions, concrete quality (which itself is dependent on a host of factors), joint type and layout, jointing procedures, and numerous construction practices. A detailed discussion of all of these items is beyond the scope of this report. The designer is referred to as the American Concrete Institute Publication No. ACI 330R, *Guide for Design and Construction of Concrete Parking Lots*, for more details. By way of general guidance, the following



recommendations are offered:

- The minimum concrete moment of rupture (MOR) = 540 psi at 28 days (approximately 3,600 psi) placed with a maximum slump of 4 inches. The mix should contain 4.5% 6% entrained air for durability. The maximum aggerate size should be no greater than 1/3 the thickness of the slab. Allow a minimum of 7 days (in warm weather, longer in cold weather) curing time before permitting light traffic on the pavement.
- Minimum pavement thickness of 5.5 inches for an estimated CBR (Compacted to 95% ASTM D 698) of the subgrade equal to 2 and a traffic category of A (Average Daily Truck Traffic (ADTT=10)). All edges of pavement should be thickened to 7 inches (transitioning back to 5.5 inches over a minimum distance of 4 feet), see ACI 330R, Table 3.4.

ACI 330R, Table 3.3 – Traffic Categories			
Truck Type	Parking Areas and Interior Lanes	Entrances and Exterior Lanes	
Cars (light Vehicles)	Category A	Category B	
Busses and Panel Trucks	Category B	Category C	
Single Units (bobtailed trucks)	Category B	Category C	
Multiple Units (tractor-trailer units with one or more trailers	Category C	Category D	

- Sand cushions should not be used as a construction expedient, instead of proper subgrade preparation. Granular aggregate subbases are not normally used for concrete parking lots. If a subbase is specified for some special reason, it should be placed on the prepared subgrade, compacted, and trimmed to the elevation called for in project plans.
- For information regarding the amount and type of reinforcement (if any), load transfer across the joints (Dowels), joint spacing, saw cutting, curing, and placement of the concrete, the reader is referred to ACI 330R, specifically Section 3.7 & 3.8.

## 9.3 Medium-Duty Pavements

## 9.3.1 FLEXIBLE PAVEMENT

For areas that will be subject to trash or delivery truck parking and traffic, the minimum recommended flexible pavement section consists of 10 inches of crushed stone base and 3 inches of asphaltic concrete surfacing. The 3 inches of surfacing may be composed of a fine-graded surface course (Type D) or a coarse-graded surface course (Type C). Paving materials should be specified as discussed previously.



#### 9.3.2 RIGID PAVEMENT

Recommendations for heavy-duty concrete paving (traffic category B (ADTT=25)) are the same as for light-duty except that 6.5 inches of portland cement concrete should be the minimum pavement section and the edges should be thickened to 8 inches.

#### 9.4 Heavy-Duty Pavements

#### 9.4.1 FLEXIBLE PAVEMENT

For areas that will be subject to heavy truck parking and traffic as well as fire apparatus emergency vehicles, the *minimum recommended* flexible pavement section consists of 8 inches of crushed stone base and 5 inches of asphaltic concrete surfacing. The 5 inches of surfacing may be composed of 2 inches of fine-graded surface course (Type D) wearing surfacing overlaying 3 inches of coarse-graded surface course (Type C). Paving materials should be specified as discussed previously.

#### 9.4.2 RIGID PAVEMENT

Recommendations for heavy-duty concrete paving (traffic category C (ADTT=100)) are the same as for light-duty except that 7.5 inches of portland cement concrete should be the minimum pavement section and the edges should be thickened to 9 inches.

TABLE 9.1 – Pavement Options – Light Duty (Parking)				
Type Base/Surface Thickness			Subgrade Preparation <sup>1</sup>	
Flexible HMAC	2" Surface (Type D)	6" Crushed Stone Base	8" Lime Treated	
Concrete	5.5"	No Base Required	Compacted Native Subgrade	

TABLE 9.2 – Pavement Options – Medium Duty			
Type Base/Surface Thickness			Subgrade Preparation <sup>1</sup>
Flexible HMAC	3" Surface (Type C or D)	10" Crushed Stone Base	8" Lime Treated
Concrete	6.5"	No Base Required	Compacted Native Subgrade

TABLE 9.3 – Pavement Options – Heavy Duty				
Type Base/Surface Thickness			Subgrade Preparation <sup>1</sup>	
Flexible HMAC	2" Surface (Type C or D)	3" HMAC Base over 8" Crushed Stone Base	8" Lime Treated	
Concrete	7.5"	No Base Required	Compacted Native Subgrade	

Notes:



1) See alternative subgrade preparation options noted in section 9.1.3.2

## **10.0 LIMITATIONS**

Geotechnical design work is characterized by the presence of a calculated risk that soil and groundwater conditions may not have been fully revealed by the exploratory borings. This risk derives from the practical necessity of basing interpretations and designs conclusions on a limited sampling of the subsoil stratigraphy at the project site. The number of borings and spacing is chosen in such a manner as to decrease the possibility of undiscovered anomalies while considering the nature of loading, size, and cost of the project. The recommendations given in this report are based on the conditions that existed at the boring locations at the time they were drilled. The term "existing groundline" or "existing subgrade" refers to the ground elevations and soil conditions at the time of our field operations.

It is conceivable that soil conditions throughout the site may vary from those observed in the exploratory borings. If such discontinuities do exist, they may not become evident until construction begins or possibly much later. Consequently, careful observations by the geotechnical engineer must be made of the construction as it progresses to help detect significant and obvious deviations of actual conditions throughout the project area from those inferred from the exploratory borings. Should any conditions at variance with those noted in this report be encountered during construction, this office should be notified immediately so that further investigations and supplemental recommendations can be made.

Construction plans and specifications should be submitted to ETTL for review prior to issuance for construction to help verify that the recommendations of this report have been correctly understood and implemented.

This company is not responsible for the conclusions, opinions, or recommendations made by others based on the contents of this report. The recommendations made in this report are applicable only to the proposed scope of work as defined in **SECTION 2.0 PROJECT DESCRIPTION** and may not be used for any other work without the express written consent of ETTL Engineers. The purpose of this study is only as stated elsewhere herein and is not intended to comply with the requirements of 30 TAC 330 Subchapter T regarding testing to determine the presence of a landfill. Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No warranties are either expressed or implied.


## Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

#### While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you - assumedly a client representative - interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

### Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

#### Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will <u>not</u> likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will <u>not</u> be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

#### **Read this Report in Full**

Costly problems have occurred because those relying on a geotechnicalengineering report did not read the report in its entirety. Do <u>not</u> rely on an executive summary. Do <u>not</u> read selective elements only. *Read and refer to the report in full.* 

## You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*  responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

#### Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

## This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.* 

#### **This Report Could Be Misinterpreted**

Other design professionals' misinterpretation of geotechnicalengineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform constructionphase observations.

#### **Give Constructors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*  conspicuously that you've included the material for information purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

#### **Read Responsibility Provisions Closely**

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

#### Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

#### Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration* by including building-envelope or mold specialists on the design team. *Geotechnical engineers are <u>not</u> building-envelope or mold specialists.* 



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## **APPENDIX A**

Plan of Borings and Boring Logs



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	C	ж		FAT Cl brown;	<u>_AY(</u> CH) medium stiff; dark slightly moist	P=2.0												· · · · · · · · · · · · · · · · · · ·										
- 5 -				orang mottled	ish brown, brown and gray; I	P=2.0			-			-							23	49	21 2	89	1 1	0				
  - 10 -	C	ж	Ewp	<u>FAT CI</u> brown,	<u>_AY(</u> CH) very hard; orangish brown and gray; dry; laminated	P=4.5+					· · · · · · · · · · · · · · · · · · ·																	
  - 15 -	-				Bottom of Boring @ 15'	P=4.5+	·····																					
Water L	evel		E	st.: <u>⊽</u>	Measured: ¥ Perched: ¥	Key to Abbrevat	ions:					Notes:																$\dashv$
Water C	)bserva	ations:		Dry and	d open upon completion.	N - SPT Dat P - Pocket F	ta (Blow Penetro	ws/Ft) ometer (t	tsf)																			
						i - Torvane L - Lab Van	(tst) ie Sheai	ar (tsf)				GPS C N32	oordinate	s: 96°, ∖	N95.886	6457°		Drilled Marc	By: Co Ta	vera	L (	ogger: Came	eron B	radbu	ry		_	

						LOG OI	F BO	ORI	NG	P-1			DA	TE				5/7/	24		
F	1		1	Engineers &	PROJEC	CT: Lake Tawakoni Office	e Parl	king Lo	ot				SU	RFA	CE I	ELEV	ATI	ON	Not	Measu	red
Ľ	-	-	_	L Consultants	PROJEC	Point, Texas			В	ORING T	PIC: Truck	jer	AT	TERB	ERG	S		19		SWELL	
DEPTH (ft) SAMPLES		ISC	GEOLOGIC UNIT	MAIN OFFICE 1717 East Erwin Street Tyler, Texas 75702 903-595-4421 MATERIAL DESCRIPTION	FIELD STRENGTH DATA	●       BLOW COUNT       ●         20       40       60       80         ▲       Qu (tsf)       ▲         1       2       3       4         ■       PPR (tsf)       ■         1.0       2.0       3.0       4.0         ◆       Torvane (tsf)       ●	RY ENSITY (pcf) 2000	OMPRESSIVE BUR TRENGTH (tsf)	IOISTURE <sup>⊥</sup> ⊼ ONTENT (%)	Natura At Plastic Limit	Il Moisture Content and Iterberg Limits Moisture Liqu Content Liqu	IOISTURE		2 PLASTIC LIMIT	PLASTICITY INDEX	IINUS #200 SIEVE (%)	LUS #40 SIEVE (%)	LUS #4 SIEVE (%)	RY ENSITY (pcf)	REE SWELL (%) ERO SWELL RESSLIRF (ksf)	IOISTURE ONTENT (%)
- 0		H	Ewp C	INTATERIAL DESCRIPTION         1.5" HMAC / 8" Base         FAT CLAY(CH) stiff; dark brown; dry; mottled        brown with orangish brown; with calcareous nodules         Bottom of Boring @ 5'	P=3.0 P=3.0		PE DE	31				20	<u>55</u> ц.	PL   14	41	92	0	0			
Water Lev Water Ob	vel	ions:	E	it.: 및 Measured: 및 Perched: 및 Dry and open upon completion.	Key to Abbrevat N - SPT Da P - Pocket F T - Torvane	ions: ta (Blows/Ft) Penetrometer (tsf) (tsf)	Notes: GPS C	oordinates		V05 8867	18°	Prilled By:			Logg	er:	Bra	dbur			

							LOG O	F BO	ORI	NG	- P-2		DA	TE				5/7/2	24		
H	17	1		Γ	Engineers &	PROJE	CT: Lake Tawakoni Office	Parl	king Lo	ot	PODING TYPE. Elight Aug	-	SU	RFA	CE I	ELEV	ATI	ON	Not	Measu	red
		_	-	-534	L Consultants	PROJE	CT NO.: G6319-24			В	DRILL RIG: Truck	ſ	AT1 LII	rerbe Mits('	ERG %)	S AN	IEVE ALYS	IS		SWELL TEST	
o DEPTH (ft)	SAWIFLES	USC	GEOLOGIC UNIT	WATER LEVEL	MAIN OFFICE 1717 East Erwin Street Tyler, Texas 75702 903-595-4421 MATERIAL DESCRIPTION	FIELD STRENGTH DATA	●       BLOW COUNT       ●         20       40       60       80         ▲       Qu (tsf)       ▲         1       2       3       4         ■       PPR (tsf)       ■         1.0       2.0       3.0       4.0         ●       Torvane (tsf)       ●         1.0       2.0       3.0       4.0	DRY DENSITY (pcf) g0	COMPRESSIVE USE STRENGTH (tsf)	MOISTURE <sup>⊥</sup> ⊼ CONTENT (%)	Natural Moisture Content and Atterberg Limits Plastic Moisture Liquid Limit Content Limit ⊢ − − − − − − − − − − − 1 20 40 60 80	MOISTURE CONTENT (%)	F LIQUID LIMIT	PLASTIC LIMIT	D PLASTICITY INDEX	MINUS #200 SIEVE (%)	PLUS #40 SIEVE (%)	PLUS #4 SIEVE (%)	DRY DENSITY (pcf)	FREE SWELL (%) ZERO SWELL PRESSLIRE (ksh	MOISTURE CONTENT (%)
		СН	E		<u>FAT CLAY(</u> CH) stiff; dark brown; slightly moist dark brown, orangish brown, tan and brown; mottled; with calcareous nodules Bottom of Boring @ 5'	P=3.0						21	61	12	49	91	1	0			
Water Le Water Ob	evel bserv	vations:	<b> </b>	Est.:	: ⊻ Measured: ¥ Perched: ¥ Dry and open upon completion.	Key to Abbrevat N - SPT Da P - Pocket F T - Torvane	ions: ta (Blows/Ft) Penetrometer (tsf) (tsf) e Shear (tsf)	Notes: GPS C	pordinates		U W95 887109°		avera	 	Logg	er: neror	Bra	dbur	v		

							LOG O	F B	ORI	NG	P-3		DA	TE				5/7/	24			
L	ור	1			Engineers &	PROJE	T: Lake Tawakoni Office	e Par	king L	ot			st	RFA	CE I	ELEV	ATI	ION	Not	Mea	sure	
			2	-3/2	<b>Consultants</b>	<b>DDO IE</b> (	Point, Texas			B	BORING TYPE: Flight	Auger	AT	TERBE	ERG	S	SIEVE		Not	SWEI		<u> </u>
						PKOJE	● BLOW COUNT ●	CON	<b>NPRESS</b>	IVE	DRILL RIG: Truck	ent		MITS(	_%)	AN (%	ALYS	sis		TES		_
			INIT		MAIN OFFICE 1717 East Erwin Street		20 40 60 80 ▲ Qu (tsf) ▲	S	rrengt ∭⊊	H	and	ent	⊨	MIT	Y INDE	EVE (	/E (%)	(%)∃		(%)	sf)	
(#)	S	USC		S LEVI	Tyler, Texas 75702 903-595-4421	IGTH	1 2 3 4 ■ PPR (tsf) ■	r (pcf)	ESSIVI TH (ts	RE IT (%)	Plastic Moisture	Liquid 씵	IT (%)	TIC LI	TICIT	200 SI	0 SIE/	SIEVE	r (pcf)	VELL (		RE IT (%)
DEPTH	SAMPL		EOLC	VATEF	MATERIAL DESCRIPTION	FIELD STREN DATA	1.0         2.0         3.0         4.0           ◆         Torvane (tsf)         ◆	۲ NSIT)	RENG	DISTU			LIQU	PLAS	PLAS	# SUN	US #4	US #4	KY ENSIT)	RC SV	ESSU	
- 0 -				/ >	4" HMAC / 5" Base	шоц	1.0 2.0 3.0 4.0	DE	STC	ΣÖ	20 40 60	80 2		PL	PI	ΠM	1	Ъ		H H		202
		сн			<u>FAT CLAY(CH) stiff; dark brown with</u> orangish brown; slightly moist; partially mottled	P=3.0						-										
 					very hard; orangish brown, gray, brown and tan; dry; mottled	P=4.5+																
- 5 -					Bottom of Boring @ 5'							<u> </u>										
Water L	evel			Est.:	⊠ Measured: ∎ Perched: 및	Key to Abbrevat	ions:	Notes:														
Water L Water C	.evel Obse	l rvations:	:	Est.:		Key to Abbrevat	ions: ta (Blows/Ft)	Notes:														
						P - Pocket F T - Torvane	Penetrometer (tsf) (tsf) e Shear (tsf)	GPS C	oordinates	95°. V	N95 886585°	Drilled By	y: Taver	a	Logg Car	er: neror	n Bra	adbur	v			_

						LOG OI	F BO	ORI	NG	P-4			DA	ТЕ			5/	17/24	4		
F			1	Engineers &	PROJE	CT: Lake Tawakoni Office	Parl	king Lo	ot n				SUI	RFAC	CE E	LEVA	TIO	N N	lot Me	easur	ed
	-	-	_	L Consultants	PRO.IE(	CT NO.: G6319-24			В	DRILL RIC				ERBE	RG	SI	EVE		SV T	VELL EST	-
DEPTH (ft) SAMPLES	ບເ	SC	GEOLOGIC UNIT	MAIN OFFICE 1717 East Erwin Street Tyler, Texas 75702 903-595-4421 MATERIAL DESCRIPTION	FIELD STRENGTH DATA	<ul> <li>BLOW COUNT</li> <li>20 40 60 80</li> <li>▲ Qu (tsf)</li> <li>1 2 3 4</li> <li>■ PPR (tsf)</li> <li>■ 1.0 2.0 3.0 4.0</li> <li>♦ Torvane (tsf)</li> <li>♦ 10 2.0 3.0 4.0</li> </ul>	DRY DENSITY (pcf)OO	STRENGTH (tsf)	MOISTURE + A	Natural Moi a Atterbe Plastic Moi Limit Co H	sture Content and org Limits isture Liquid ntent Limit •	MOISTURE CONTENT (%)		PLASTIC LIMIT	DIASTICITY INDEX	MINUS #200 SIEVE (%)	PLUS #40 SIEVE (%)	DRY	DENSITY (pcf) FREE SWELL (%)	ZERO SWELL PRESSURE (ksf)	MOISTURE CONTENT (%)
- 0	СН		Ewp	3" HMAC / 6" Base <u>FAT CLAY(CH) stiff; brown with tan;</u> slightly moist; becoming mottled hard; light gray and orangish brown; dry mottled Bottom of Boring @ 5'	P=3.0 P=4.5							21	57	15	42	92	1 0				
Water Lev Water Obs	rel servatio	ons:	E	st.: 귳 Measured: ⊈ Perched: ዧ Dry and open upon completion.	Key to Abbrevat N - SPT Da P - Pocket F T - Torvane	ions: ta (Blows/Ft) Penetrometer (tsf) (tsf) e Shear (tsf)	Notes: GPS C	oordinates	8° V	V95 886828°	Drille Mar	d By:	ivera		Logge	r: peron	Bradb	burv			

					~		LOG O	F B	ORI	NG	P-5				DAT	ſE			5/7/	/24			٦
R	1	7	1	Enginee	ers &	PROJEC	CT: Lake Tawakoni Office	e Parl	king Lo	ot	ODING	TVDE, Eliat	t Augor		SUR	FACE	ELE	VAT	ION	Not	Mea	sure	ed
			_		ants	PROJEC	CT NO.: G6319-24			D	DRIL	LRIG: Truc	k Auger	Ī	ATTE LIM	ERBERO	A	SIEVI NALY:	e Sis		SWE	LL T	
o DEPTH (ft)	CH	SC	GEOLOGIC UNIT WATER LEVEL	MAIN OFFICE 1717 East Erwin St Tyler, Texas 7570 903-595-4421 MATERIAL DESCR 1" HMAC / 5" Base FAT CLAY(CH) very stiff; bro orangish brown; slightly mois becoming mottled	reet )2 IPTION e wn with t;	HIELD E STRENGTH GTA	<ul> <li>BLOW COUNT</li> <li>20 40 60 80</li> <li>Qu (tsf)</li> <li>1 2 3 4</li> <li>■ PPR (tsf)</li> <li>1.0 2.0 3.0 4.0</li> <li>◆ Torvane (tsf)</li> <li>4.0</li> </ul>	DRY DENSITY (pcf) 000	COMPRESSIVE STRENGTH (tsf)	MOISTURE <sup>±</sup> ⊼ CONTENT (%)	Natur Plastic Limit ⊢−− 20	ral Moisture Con and Atterberg Limits Moisture Content 	Liquid Liquid Limit - — 1 80	MOISTURE CONTENT (%)			MINUS #200 SIEVE (%)	PLUS #40 SIEVE (%)	PLUS #4 SIEVE (%)	DRY DENSITY (pcf)	FREE SWELL (%)	PRESSURE (ksf)	MOISTURE CONTENT (%)
			Ewp	Bottom of Boring @	5'	P=3.5																	
Water Lev Water Ob	vel	nns:	Es	t.: 又 Measured: ▼ <sup>P</sup> Dry and open upon completion.	erched: ¥	Key to Abbrevat N - SPT Dat P - Pockt F T - Torvane	ions: ta (Blows/Ft) Penetrometer (tsf) (tsf)	Notes:	oordinates		1/05 887	125°	Drille	d By:	Wera		gger:	Don Br	adbuu				

							LOG O	F B	ORI	NG	<b>P-6</b>			DA	TE				5/7/	24		
F		7	1	T	Engineers &	PROJEC	CT: Lake Tawakoni Office	e Parl	king Lo	ot	ODDIG #			su	RFA	CE I	ELEV	ATI	ION	Not	Meası	ired
	-		-		Consultants	PRO.IE(	CT NO.: G6319-24			В	ORING T	RIG: Truck	ger	AT	TERB	ERG	S AN				SWELL	
bepth (ft) SAMPLES	U	SC			MAIN OFFICE 1717 East Erwin Street Tyler, Texas 75702 903-595-4421 ERIAL DESCRIPTION	FIELD STRENGTH DATA	<ul> <li>BLOW COUNT</li> <li>20 40 60 80</li> <li>Qu (tsf)</li> <li>1 2 3 4</li> <li>■ PPR (tsf)</li> <li>1.0 2.0 3.0 4.0</li> <li>◆ Torvane (tsf)</li> <li>4.0</li> </ul>	DRY DENSITY (pcf) 000	COMPRESSIVE LENGTH (tsf)	MOISTURE <sup>T</sup> ⊼ CONTENT (%)	Natura At Plastic Limit H — — 20	and tterberg Limits Moisture Liq Content Lir 	uid nit	CONTENT (%) F LIQUID LIMIT		DLASTICITY INDEX	MINUS #200 SIEVE (%)	PLUS #40 SIEVE (%)	PLUS #4 SIEVE (%)	DRY DENSITY (pcf)	FREE SWELL (%) ZERO SWELL	MOISTURE CONTENT (%)
- 0 -			Ewp	FAT CL brown; stiff; o mottled	4" HMAC / 5" Base <u>AY</u> (CH) medium stiff; dark moist rangish brown, gray and tan; Bottom of Boring @ 5'	P=2.0 P=2.75							2	1 55	13	42	92	0	0			. 20
Water Lev Water Obs	rel servatio	ons:	E	st.: ⊻ Dry and	Measured: Y Perched: Y open upon completion.	Key to Abbrevat N - SPT Da P - Pocket F T - Torvane	ions: ta (Blows/Ft) Penetrometer (tsf) (tsf) e Shaar (tsf)	Notes: GPS C	oordinates		V95 8865	93°	Drilled By:	Taver	 		er:	Bra	adbur			

## Boring Log Descriptive Terminology Key to Soil Symbols and Terms

#### SOIL CLASSIFICATION CHART

		NIC	SYMB	OLS	TYPICAL
191	AJUR DIVISIO	GNIC	GRAPH	LETTER	DESCRIPTIONS
	GRAVEL	CLEAN GRAVELS	00.00 00.00	GW	Well-graded gravels, gravel sand mix- tures, little or no fines.
	AND GRAVELLY SOILS	(LITTLE OR NO FINES)		GP	Poorty graded gravels, gravel-sand mix- tures, little or no fines.
COARSE GRAINED	MORE THAN 50%	GRAVELS WITH FINES		GM	Silty gravels, gravel-sand-silt mixtures.
30113	FRACTION RETAINED ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND	CLEAN SANDS		SW	Well-graded sands, gravelly sands, little or no fines.
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	AND SANDY SOILS	(LITTLE OR NO FINES)		SP	Poorly graded sands, gravelly sands, little or no fines.
	MORE THAN 50% OF COARSE	SANDS WITH FINES		SM	Silty sands, sand-silt mixtures.
	PASSING ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		SC	Clayey sands, sand-clay mixures.
				ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
FINE	SILTS AND	LIQUID LIMIT LESS THAN 50		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
SOILS	CLAIS			OL	Organic silts and organic silty clays of low plasticity.
MORE THAN 50% OF MATERIAL IS				МН	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT Greater Than 50		СН	inorganic clays of high plasticity, fat clays.
				ОН	Organic clays of medium to high plasticity, organic slits.
HIG	GHLY ORGANIC SC	DILS		PT	Peat and other highly organic soils.

#### **Order of Descriptors**

- Group Name
- Consistency or Relative Density
- Moisture Condition
   Color
- Particle size descriptor(s) (coarse grained soils only)
- Angularity of coarse grained soils
- Other relevant notes

Criteria For Consistency of Fi	Descriptors ine Grained Soils
Consistency	N-Value (uncorrected)
Very Soft	<2
Soft	2-4
Medium Stiff	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30
Apparent Density of (	Coarse Grained Soils
Relative Density	N-Value (uncorrected)
Very Loose	<4
Loóse	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

#### Moisture Condition -Absence of moisture, dusty, dry to the touch. -Damp, but no visible water. -Visible free water.

	remnuum of Farucie Size Kanyes
Soil Comp	onent Size Range
Boulder	> 12 in (300 mm)
Cobble	3 in (75 mm) - 12 in (300 mm)
Gravel	No. 4 Sieve (4.75 mm) to 3 in (75 mm)
Sand	No. 200 (0.075 mm) to No. 4 Sieves (4.75 mm)
Silt	< No. 200 Sieve (0.075 mm)*
Clay	< No. 200 Sieve (0.075 mm)*
*Use Atter	berg limits and chart below to differentiate
	between silt and clay.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

#### Notes

SPT (Standard Penetration Test-ASTM D1586): The number of blows of a 140 lb (63.6 kg) hammer falling 2.5 ft (750 mm) used to drive a 2 in (50 mm) O.D. Split Spoon sampler for a total of 1.5 ft (0.45 m) of penetration.

Written as follows:

first 0.5 ft (0.15 m) - second 0.5 ft (0.15 m) - third 0.5 ft (0.15 m) (ex: 1-3-9)

Note: if the number of blows exceeds 50 before 0.5 ft (0.15 m) of penetration is achieved, the actual penetration follows the number of blows in parentheses

(ex: 12-24-50 (0.09 m), 34-50 (0.4 ft), or 100 (0.3 ft)).

WR denotes a zero blow count with the weight of the rods only. WH denotes a zero blow count with the weight of the rods plus the weight of the hammer.

Soil Classifications are Based on the Unified Soil Classification System, ASTM D2487 and D2488. Also included are the AASHTO group classifications (M145). Descriptions are based on visual observation, except where they have been modified to reflect results of laboratory tests as deemed appropriate.



#### **Angularity of Coarse-Grained Particles**

Angular	-Particles have sharp edges and relative plane sides with unpolished surfaces.
Subangular	-Particles are similar to angular description, but have rounded edges.
Subrounde	d-Particles have nearly plane sides, but have
Rounded	no edges. -Particles have smoothly curved sides and well-rounded comers and edges.

## **APPENDIX B**

Laboratory Testing Reports



#### GEOTECHNICAL\*MATERIALS\*ENVIRONMENTAL\*DRILLING\*LANDFILLS

#### LABORATORY TEST DATA SUMMARY SHEET

	PRO	JECT:	Lake Tawa	akoni Office Parking Lot																		
ETTL JO PROJECT	B NUN LOCA	IBER: TION:	G 6319-24 Point, TX			START D. FINISH D.	ATE: ATE:	5/14/2024 6/3/2024		(%)	8	•		Uni	t Weight	/ Compre	ession Te	ests	Con	sol. / Swell	Tests Res	ults
	CL	IENT:	Sabine Riv	ver Authority		TECHNICIAI	TECHNICIAN(S): HF		ent (	ent ( 0. 20 10. 4			ž				Ħ					
PROJECT MANAGER.: Came			Cameron	Bradbury		DATE SAMP	ED:	5/7/20	24	Cont	N gu	l per	l per	Veig	(%	sive (tsf)	rain	l (psi)	Veig	(%	(%) II	ng (ksf)
Dopth (ft		) (ff.)	Sample				Atterberg Limits	assi	etair	etair	Init /	ture ent ('	pres: gth	re St	ning sure	Jnit /	ture ent ('	Swe	sure			
Boring No.	Тор	Bott	No.	Description of Sample		USCS Classification	LL	PL	Ы	Moist	(%) P Sieve	(%) R Sieve	Sieve (%) R Sieve	Dry L (pcf)	Mois Cont	Com	Failu (%)	Confi Press	Dry U (pcf)	Moist Conte	Free	Restr Pres:
C-1	1.0	3.0		Drk Brown	CL	Lean Clay with Sand	33	18	15	28	79	2	0									
C-1	3.0	5.0		Drk Br w/Br	СН	Fat Clay	56	15	41	22	89	1	0	121.9	21.4	1.19	14.96	3.1				
C-1	8.0	10.0		Org.Br, Br & Gray	СН	Fat Clay	58	22	36	24	92	0	0									
C-2	1.0	3.0		Drk Brown	CL	Lean Clay with Sand	32	14	18	23	84	1	0									
C-2	5.0	7.0		Org.Br, Br & Gray	CL	Lean Clay	49	21	28	23	91	1	0									
P-1	1.0	3.0		Drk Brown	СН	Fat Clay	55	14	41	20	92	0	0									
P-2	3.0	5.0		Org.Br, Tan & Br	СН	Fat Clay	61	12	49	21	91	1	0									
P-3	1.0	3.0		Drk Br w/Org.Br	СН	Fat Clay	NT	NT	NT	NT	NT	NT	NT									
P-4	1.0	3.0		Br w/Tan	СН	Fat Clay	57	15	42	21	92	1	0									
P-5	1.0	3.0		Br w/Org.Br	СН	Fat Clay	NT	NT	NT	NT	NT	NT	NT									
P-6	1.0	3.0		Drk Brown	СН	Fat Clay	55	13	42	21	92	0	0									

NT = Not Tested, Visual Classification

NP = Non Plastic, LL Attempted

				Page: 1					
	Tyler, TX - Main Office			1717 East Erwin Street Tyler, Texas 75702			Phone: 903-595-4421		
	Longview, TX		Arlington, TX		Austin, TX		Texarkana, AR		
	903-758-0402	*	817-962-0048	*	512-519-9312	*	870-772-0013		
WWW.ETTLINC.COM									

# ETTL Engineers & Consultants

#### ASTM D 2850 Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

Client	Lake Tawakoni Office Park	king Lot		ETTL Project No.:	G 6	319-24
Client:	Sabine River Authority			Boring No.:		C-1
Location:	Point, Texas		Depth (ft.):	3.0 - 5.0		
Material:			Sample No.:			
				At Test Sample	e Properti	es
	U.U. Tri	iaxial		Height:	4.035	inches
14 -				Diameter:	2.004	inches
1.4				Height / Diameter Ratio:	2.01	
				Initial Moisture Content:	21.4%	(trimmings)
1.2				Initial Dry Unit Weight:	100.4	lbs./ft <sup>3</sup>
				Initial Total Unit Weight:	121.9	lbs./ft <sup>3</sup>
1.0 -				Specific Gravity:	2.70	(assumed)
				Initial Void Ratio:	0.679	
(tsf				Initial Saturation:	85.1	%
8.0 s				Pocket Pentronmeter:	2.00	tsf
Stre				Hand Torvane:	N/T	tsf
0.6 d				Rate of Strain:	1.0	%/min
evia				Max. Deviator Stress (σ1-σ3): _	1.19	tsf
				Confining Pressure σ3:	3.10	psi
0.4				Strain At Failure:	14.96	%
				Secant Modulus at 1/2 Peak Stress:	128	ksf
0.2				Strain at 50% Max Stress ( $e_{50}$ ):	0.010	in/in
				Atterbergs LL / PI:	56	41
0.0				Passing No. 200 Sieve:	89.0	%
0.0	5.0 10	.0 15.0	20.0	Sampling Method: Sampling Method:	Sample Trimn	ned, Shelby Tube
	Axial St	rain (%)		Type of Specimen:	Undi	isturbed
				Date Sampled:	5/7	7/2024
			]	Date Sampled: _ Specimen Trimming ID: _	5/7 B	7/2024 (trimmed)
Festing Rema	arks: Membrane Correcti Hunter Franks	on Factor Applied to Test Date:5/1	Deviator Str	Date Sampled:	5/7 B	7/2024 (trimmed)

## **APPENDIX C**

**USGS Seismic Design Report** 

USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error. USGS web services are now operational so this tool should work as expected.





## Lake Tawakoni Office Parking Lot

Latitude, Longitude: 32.852724, -95.886593

Goog	le	1480 Sabine River Authority-Texas	<b>1</b> 480 47	Map data ©2024
Date			6/10/2024, 3:01:33 PM	
Design Co	de Referen	ice Document	IBC-2015	
Risk Categ	jory			
Sile Class			D - 3til 30i	
Type	Value	Description		
e	0.108	$MCE_{R}$ ground motion. (for 0.2 second period)		
5 <sub>1</sub>	0.058	MCE <sub>R</sub> ground motion. (for 1.05 period)		
S <sub>MS</sub>	0.172	Site-modified spectral acceleration value		
S <sub>M1</sub>	0.139	Site-modified spectral acceleration value		
S <sub>DS</sub>	0.115	Numeric seismic design value at 0.2 second SA		
S <sub>D1</sub>	0.093	Numeric seismic design value at 1.0 second SA		
Туре	Value	Description		
SDC	В	Seismic design category		
Fa	1.6	Site amplification factor at 0.2 second		
Fv	2.4	Site amplification factor at 1.0 second		
PGA	0.05	MCE <sub>G</sub> peak ground acceleration		
F <sub>PGA</sub>	1.6	Site amplification factor at PGA		
PGA <sub>M</sub>	0.081	Site modified peak ground acceleration		
TL	12	Long-period transition period in seconds		
SsRT	0.108	Probabilistic risk-targeted ground motion. (0.2 second)		
SsUH	0.119	Factored uniform-hazard (2% probability of exceedance in 50 years) spe	ectral acceleration	
SsD	1.5	Factored deterministic acceleration value. (0.2 second)		
S1RT	0.058	Probabilistic risk-targeted ground motion. (1.0 second)		
S1UH	0.067	Factored uniform-hazard (2% probability of exceedance in 50 years) spe	ectral acceleration.	
S1D	0.6	Factored deterministic acceleration value. (1.0 second)		
PGAd	0.6	Factored deterministic acceleration value. (Peak Ground Acceleration)		

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U.S. Seismic Design Maps	;
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Туре	Value	Description
PGA <sub>UI</sub>	н 0.05	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C <sub>RS</sub>	0.909	Mapped value of the risk coefficient at short periods
C <sub>R1</sub>	0.863	Mapped value of the risk coefficient at a period of 1 s
CV		Vertical coefficient

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## **APPENDIX E**

**Predicted Engineering Properties of Soils** 

Table 6.2.1 - Predicted Soil Engineering Properties										
Stratum	1	2	Compacted ASTM C33 Size #57 or #67 Crushed Stone	Compacted TxDOT Base	Select Fill Compacted 100% D698	Select Fill Compacted 100% D698				
Depth from Existing Grade (ft)	0-8	8-15	-	-	-	-				
Moist Weight (pcf) <sup>1</sup>	130	130	90 - 105	135	120	125				
Soil Classification - USCS	CL & CH	СН	GP	GW	CL	SC				
		Peak	Shear Strength Pa	rameters <sup>3</sup>						
Drained Cohesion c' (psf) 2	150	200	-	-	250	200				
Drained Friction Angle φ' 2	21	19	39	36	28	31				
Unconsolidated / Undrained Cohesion c (psf)	1500	2000	-	-	1800	1500				
		La	ateral Loading Para	meters						
Rankine – Kp (passive)	2.12	1.97	4.40	3.85	2.77	3.12				
Rankine – Ka (active)	0.47	0.51	0.23	0.26	0.36	0.32				
Rankine – Ko (at rest)	0.64	0.67	0.37	0.41	0.53	0.48				
ε 50 ⁴	-	-	-	-	-	-				
Soil Type (For L- Pile Analysis) ⁴	Stiff Clay w/o Free Water	Stiff Clay w/o Free Water	-	-	Stiff Clay w/o Free Water	Stiff Clay w/o Free Water				
		C	ompressibility Para	meters						
Initial Void Ratio – eo	0.679	-	-	-	0.4	0.45				
Poisson's Ratio	0.35	0.35	0.35	0.35	0.4	0.3				

#### Notes:

- 1) Use buoyant unit weight where applicable
- 2) Estimated drained friction angle (Phi' = degrees) and cohesion (c' = psf), measured by CU triaxial and C
- 3) Peak Unconsolidated/Undrained shear strength (psf) at in-situ moisture content, measured by U.U. tri
- 4) Use default L-Pile values for K and e50, as applicable where values not otherwise indicated

