

CITY OF LAVON
COLLIN COUNTY, TEXAS

PROJECT A
CR 484 PAVING IMPROVEMENTS
[CIP-11]

PROJECT B
ROSEWOOD DRIVE PAVING IMPROVEMENTS
[CIP-35]



PREPARED BY:



9330 Lyndon B. Johnson Freeway
Suite 1225
Dallas, Texas 75243
214-503-0555
#F - 2827

FEBRUARY 2025



Mark D. Hill, P.E.

ISSUED FOR BID
21 FEB 25

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**SECTION 00 11 13
ADVERTISEMENT FOR BIDS**

Sealed proposals addressed to the City of Lavon will be received at City Hall, 120 School Road, PO Box 340, Lavon, TX 75166, on Tuesday, March 18, 2025 at 2:00 p.m., then publicly read at said place and time for the following project:

LAVON PAVING IMPROVEMENTS

**PROJECT A
CR 484 PAVING IMPROVEMENTS – [CIP-11]**

**PROJECT B
ROSEWOOD DRIVE PAVING IMPROVEMENTS [CIP-35]**

Both Projects will be awarded as a single contract to one bidder.

Bidders must submit, with their bids, a Cashier's Check or Certified Check in the amount of five percent (5%) of the maximum amount bid, payable without recourse to the City of Lavon, Texas, or a Proposal Bond in the same amount from a reliable Surety Company as guarantee that the Bidder will enter into a contract and execute bond and guarantee forms provided within ten (10) days after receipt of notice of award.

The successful Bidder must furnish performance and payment bonds each in the amount of one-hundred percent (100%) of the contract price from an approved Surety Company holding a permit from the State of Texas, to act as Surety and be acceptable according to the latest list of companies holding certificates of authority from the Secretary of Treasury of the United States, or other Surety or Sureties acceptable to the Owner.

All unit prices must be stated in both script and figures. The Owner reserves the right to reject any or all bids and to waive formalities. In case of ambiguity or lack of clearness in stating the price in the bids, the Owner reserves the right to consider the most advantageous construction thereof, or to reject the bid. Unreasonable or unbalanced unit prices will be considered sufficient cause of rejection of any bid or bids. Only original signatures will be accepted.

Bidders are expected to inspect the site of the work and to inform themselves regarding local conditions under which the work is to be done. Attention is called to the provisions of the Acts of the 43rd Legislature of the State of Texas and subsequent amendments concerning the wage scale and payment of prevailing wages specified. The prevailing wage rate will be as established by the City of Lavon for this project.

Instructions to Bidders, Proposal Forms, Specifications, Plans and Contract Documents may be obtained electronically by downloading from www.civcastusa.com or may be examined without charge at Lavon City Hall, 120 School Road, Lavon, TX 75166. Hard copies may be obtained from Freeman-Millican, Inc., 9330 Lyndon B. Johnson Freeway, Suite 1225, Dallas, TX 75243 at a **non-refundable** fee of Fifty dollars (\$50.00). A request for hard copies requires a minimum 24-hour notice. Technical questions can be directed to the design engineer, Freeman-Millican, Inc. via email at emagee@fmi-dallas.com or by telephone at (214) 503-0555 x 110.

SECTION 00 20 13 INSTRUCTIONS TO BIDDERS

PART 1: GENERAL

1.01 LOCATION AND DESCRIPTION OF PROJECT

The work to be performed under the provisions of these Contract Documents consists of furnishing all materials, equipment and tools; performing all necessary labor and supervision; and all work appurtenant to the installation of reinforced concrete pavement, pavement markings, grading, driveways and driveway culverts.

1.02 OBTAINING CONTRACT DOCUMENTS

Bid/Contract Documents, including Drawings and Technical Specifications are on file and may be examined at Lavon City Hall, 120 School Rd., Lavon, TX 75166. and obtained at www.civcastusa.com. All questions are **required** to be asked from the CivCast website. Hard copies of the plans can be obtained from Freeman-Millican, Inc. located at 9330 Lyndon B. Johnson Freeway, Suite 1225, Dallas, TX 75243, upon payment of fifty (\$ 50.00) dollars, which **non-refundable**. A request for hard copies requires a minimum 24-hour notice by contacting the design engineer, Freeman-Millican, Inc. via email at emagee@fmi-dallas.com or by telephone at (214) 503-0555 x 110.

1.03 EXAMINATION OF CONTRACT DOCUMENTS AND SITE OF THE WORK

Bidders are advised that the Contract Documents, plans, specifications and other documents on file as stated in the advertisement shall constitute all the information that the Owner shall furnish. Bidders are required, before submitting any proposal, to review the plans and read the specifications, proposal, contract and bond forms carefully; to visit the site of the work; to examine carefully local conditions; to inform themselves by their independent research, tests and investigation of the difficulties to be encountered and judge for themselves the accessibility of the work and all attending circumstances affecting the cost of doing the work or time required for its completion; and to obtain all information required to make an intelligent proposal.

No information given by the Owner or any official thereof, other than that shown on the plans and contained in the specifications, proposals and other contract documents, shall be binding upon the Owner. Bidders shall rely exclusively upon their own estimates, investigations, tests and other data that are necessary for full and complete information upon which the proposal may be based. Any Bidder, by submitting his bid, represents and warrants: that he has prepared his bid according to the specifications, with full knowledge and understanding of the terms and provisions thereof; that he has reviewed, studied and examined the bid prior to the signing and submission of same; and that he was familiar with the terms of his proposal, verified his calculations and found them to be correct and agrees to be bound thereby.

PART 2: QUALIFICATION REQUIREMENTS

2.01 QUALIFICATION OF BIDDERS

Bidders may be required as determined by the Owner to submit evidence that they have a practical knowledge of the particular work bid upon, and that they have the financial resources to complete the proposed work.

In determining the Bidder's qualifications, the following factors will be considered: work previously completed by the bidder and whether the bidder:

- A. Maintains a permanent place of business

- B. Has adequate plant and equipment to do the work properly and expeditiously
- C. Has the financial resources to meet all obligations incident to the work.
- D. Has appropriate technical experience.
- E. Can comply with the required performance schedule, taking into account all existing commitments.
- F. Demonstrates a satisfactory record of performance, judgment and skills.

Each Bidder may be required to show that he has successfully completed previous work and that no just claims are pending against such work. No proposal will be accepted from a Bidder who is engaged in any work that would impair his ability to perform or finance this work.

All Bidders shall complete Contractor's Qualification Statement and submit it with the bid.

PART 3: ALTERNATIVES

3.01 SUBSTITUTION OF MATERIALS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitutes or "or-equal" items. Whenever it is shown in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

PART 4: BIDDING PROCEDURES

4.01 PRE-BID CONFERENCE

A pre-bid conference will not be held for this project.

4.02 PREPARATION OF PROPOSAL FORM

The Bidder shall submit his proposal on the forms furnished by the Owner. All blank spaces in the form shall be correctly filled in and the Bidder shall state the prices both in words and numerals, for which he proposes to do the work contemplated or furnish the material required. Such prices shall be written in ink or by typewriter distinctly and legibly.

In cases of discrepancy between the price written in words and price written in figures, the price written in words shall govern. If the proposal is submitted by an individual, his name must be signed by him or his duly authorized agent. If the proposal is submitted by an association or partnership, the name and address must be given and the proposal signed by a duly authorized member of the association or partnership. If the proposal is submitted by a corporation, the corporate name, state of incorporation, and business address must be given, the proposal signed by a duly authorized corporate officer or agent.

Powers of attorney authorizing agents to sign the proposal must be properly certified and must be in writing and submitted with the proposal. The proposal shall be executed in ink.

All names must be typed or printed below the signature. The Bidder shall acknowledge receipt of each and every Addendum received in the proposal form and on the outside of the envelope in which the bid is submitted. The address and telephone number for communications regarding the proposal

must also be shown. It is understood and agreed that the proposal may not be withdrawn once the bid-opening process has begun.

Indicate on the outside of the envelope in which the bid is submitted the following information:

- A. Bidder's name
- B. Owner's name
- C. Project name
- D. Bid date and time
- E. The words "Sealed Bid"

4.03 FORMS TO BE SUBMITTED WITH PROPOSAL

The following forms must be submitted with the proposal:

- A. 00 45 13 - Statement Of Bidder's Qualifications
- B. 00 45 19 - Noncollusion Affidavit of Prime Bidder

4.04 PROPOSAL GUARANTY

No proposal shall be considered unless it is accompanied by a cashier's check on any state or national bank, or acceptable Bidder's bond, payable unconditionally to the Owner. The cashier's check or Bidder's bond shall be in the amount of not less than 5 percent of the total amount of the bid. The proposal guaranty is required by the Owner as evidence of good faith and as a guarantee that if awarded the contract, the Bidder shall execute the contract and furnish the required bonds and evidence of insurance within 10 days after the award of said contract. The said Bidder's bond shall be conditioned that, if the proposal is withdrawn after the bids have been opened or the Bidder refuses to execute the contract according to his proposal and provide the required surety bonds, the Bidder and the surety shall become liable to the Owner for the amount of the Bidder's bond.

If a Bidder's bond is used, the surety thereon shall hold a permit from the State of Texas to act as surety. The surety shall designate an agent in the Owner's county to whom requisite notices may be delivered and upon whom service of process may be had. The Bidder's bond shall bear the same date as the bid opening date.

In the event a cashier's check is submitted along with the proposal of the Bidder, and the Contractor does not execute the contract and provide the required surety bonds within 10 days after the award of said contract, or withdraws his bid after bids have been opened, the Owner shall be entitled to the proceeds of such check.

4.05 SUBMISSION OF PROPOSALS

No proposal shall be considered unless it is filed at the place and within the time limit for receiving proposals as stated in the advertisement. Each proposal accompanied with the proposal guaranty shall be submitted in a sealed opaque envelope, plainly marked with the Project title (and if applicable, the designated portion of the Project for which the proposal is submitted) and the name and address of the Bidder.

4.06 MODIFICATION OR WITHDRAWAL OF PROPOSAL

Proposals filed with the Owner can be withdrawn or modified and redeposited before the time set for opening proposals. Request for nonconsideration of proposals must be made in writing addressed

to the Owner before the time set for opening proposals. After other proposals are opened and publicly read, the proposal for which nonconsideration is properly requested may be returned unopened. The proposal may not be withdrawn after the bid opening has commenced except as follows:

If, within twenty-four hours after proposals 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 proposal, that Bidder may withdraw its proposal and the proposal guaranty will be returned. Thereafter, that Bidder will be disqualified from all other Work to be provided under the Contract Documents.

4.07 INTERPRETATION OF CONTRACT DOCUMENTS

All questions about the meaning or intent of the Contract Documents are to be directed to Engineer. Interpretations or clarifications considered necessary by Engineer in response to such written questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days before the date for opening of bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

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

PART 5: INFORMATION AVAILABLE TO BIDDERS

5.01 TIME OF COMPLETION

Time is of the essence in this contract. The Contractor shall substantially complete the work on which he has bid within the number of calendar days he has bid.

5.02 SOIL INVESTIGATION DATA

No soil investigation has been performed for this project. All excavation is unclassified.

5.03 QUANTITIES IN PROPOSAL FORM

The quantities of the work and materials set forth in the proposal form or on the plans approximately represent the work to be performed and materials to be furnished; and are for the purpose of comparing the bids on a uniform basis. Payment shall be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications; and it is understood that the quantities may be increased or decreased as hereinafter provided, without in any way invalidating the bid prices.

PART 6: DISPOSITION OF PROPOSALS

6.01 OPENING OF PROPOSALS

The proposals filed with the Owner shall be opened at the time stated in the advertisement or any subsequently issued addendum, and publicly read aloud and shall afterwards remain on file with the Owner. No contract shall be awarded based on such proposals until after at least two days have elapsed.

6.02 IRREGULAR PROPOSALS

Proposals shall be considered irregular if they show any omissions, alterations of form, additions, unbalanced values or conditions not called for, unauthorized alternate bids or other irregularities of

any kind. The Owner may reject any proposal containing any such irregularity. The Owner, however, reserves the right to waive any irregularities and to make the award in the best interest of the Owner.

6.03 REJECTION OF PROPOSALS

The Owner reserves the right to reject any or all proposals, and all proposals submitted are subject to this reservation. Proposals may be rejected for any of the following specific reasons:

- A. Proposals received after the time limit for receiving proposals as stated in the advertisement or any subsequently issued addendum.
- B. Proposals unaccompanied by the required bid security.
- C. Proposal constituting a nonresponsive bid.
- D. Proposal containing unsolicited conditions or qualifications.
- E. Proposal is considered irregular by the Owner.

The Owner reserves the right to waive any or all of the above reasons and make the award in the best interest of the Owner.

6.04 DISQUALIFICATION OF BIDDERS

Bidders may be disqualified and their proposal not considered for any of the following specific reasons:

- A. Reason for believing collusion exists among the bidders.
- B. Reasonable grounds for believing that any bidder is interested in more than one proposal for the work contemplated.
- C. The bidder or his surety being currently in any litigation against the Owner, or where such litigation is contemplated or imminent, in the sole opinion of the Owner.
- D. The bidder being in arrears on any existing contract or having defaulted on a previous contract.
- E. Lack of competency, responsibility or financial capability as revealed by the bid questionnaires, financial statement, etc.
- F. Uncompleted work which in the judgment of the Owner shall prevent or hinder the prompt completion of additional work if awarded.
- G. Failure of the bidder to submit a bid bond in submitting his bid, or submission of a cashier's check drawn on a state or national bank not located in the Owner's jurisdictional area.
- H. Unbalanced value of any bid items.
- I. Unacceptable safety record on any previous work.

PART 7: ACCEPTANCE AND AWARD

7.01 BASIS OF ACCEPTANCE OF PROPOSAL AND AWARD OF CONTRACT

The Owner reserves the right to reject any and all bids, to waive any and all informalities not involving price, time or changes in the work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional bids. Also, Owner reserves the right to reject the bid of any Bidder if Owner believes that it would not be in the best

interest of the Project to make an award to that Bidder, whether because the bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner.

In evaluating bids, Owner will consider the qualifications of the Bidders, whether or not the bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Proposal Form or before the Notice of Award is issued.

In case of ambiguity or lack of clearness in stating prices in the proposal, the Owner reserves the right to accept the prices written in words.

The Owner may consider the qualifications and experience of subcontractors, suppliers, and other persons and organizations proposed for those portions of the work about which the identity of subcontractors, suppliers, and other persons and organizations when such information is required to be submitted by the Owner before the Notice of Award is issued.

The Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the work according to the Contract Documents to Owner's satisfaction within the prescribed time.

If the contract is to be awarded, it will be awarded to the lowest responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

The Owner may consider any combination of additive or deductive alternate bids in the proposal and reserves the right to award the Contract based on the total amount bid for the base bid and such alternate bid items as is required to meet the needs of the Owner. Where the proposal states that the Owner may delete certain bid items, the Contract will be awarded based on the lowest bid received for bid items that remain after the selected bid items have been deleted by the Owner.

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

7.02 RETURN OF PROPOSAL GUARANTY

If requested to do so by the Bidder, the Owner will normally return the proposal guaranties accompanying all proposals within 10 working days after bid opening, if requested, except the three apparent low proposals. The three apparent low proposal guaranties shall be retained by the Owner until the required contract and surety bonds have been executed, after which shall be returned, if requested.

END OF SECTION

**SECTION 00 42 43
PROPOSAL**

_____, 2025

Bidder:

Having carefully examined the Information for Bidders, the General Conditions of the Contract, and Detailed Plans and Specifications, the undersigned bidder hereby proposes to do all the work and furnish all necessary superintendence, labor, machinery, equipment, tools and materials, and to complete all the work, as specified and as shown on plans, and as required by the contracts to which this refers, for the construction of all items listed at the prices shown for each item on the following bid schedule.

The bid schedule attached lists the various divisions of construction contemplated in the Plans and Specifications. Bid prices must be shown in Words and Figures for each item listed in the Bid Form, and in the event of discrepancy, the words shall control.

Receipt is hereby acknowledged of the following addenda to the Contract Documents:

Addendum No. 1 dated _____ Received _____
Addendum No. 2 dated _____ Received _____
Addendum No. 3 dated _____ Received _____

All the various phases of work enumerated in the detailed specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the bid schedule, irrespective of whether it is named in said list.

Bidder agrees to perform all of the work listed and as described in the specifications and shown on the plans, for the following prices for each item:

PROJECT A: CR 484 PAVING IMPROVEMENTS [CIP-11]

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.1	1	LS	For furnishing all materials, labor, and equipment to mobilize & demobilize on job site , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per LUMP SUM	\$ _____
P.2	1	LS	Insurance & bonds , the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per LUMP SUM	\$ _____
P.3	1,730	SY	For furnishing all materials, labor, and equipment to perform roadway excavation with subgrade , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per SQUARE YARD	\$ _____
P.4	51	SY	For furnishing all materials, labor, and equipment to remove and dispose of gravel driveway, complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per SQUARE YARD	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.5	315	SY	For furnishing all materials, labor, and equipment to remove and replace gravel driveway, complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.6	2	EA	For furnishing all materials, labor, and equipment to remove and dispose of existing sign, complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per EACH	\$ _____
P.7	2	EA	For furnishing all materials, labor, and equipment to remove, store, and reset existing sign, complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per EACH	\$ _____
P.8	5,657	SY	For furnishing all materials, labor, and equipment to install 8" thick concrete pavement , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE FOOT	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.9	106	SY	For furnishing all materials, labor, and equipment to install 6" thick asphalt pavement (transition) , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.10	6,249	SY	For furnishing all materials, labor, and equipment to install 6" thick lime stabilized subgrade (6% minimum) , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.11	500	SY	For furnishing all materials, labor, and equipment to reconstruct existing asphalt pavement at locations determined by Owner, including excavation, sawcuts, 8" flexible base and 6" Type C asphalt, complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.12	48	LF	For furnishing all materials, labor, and equipment to install concrete street header , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per LINEAR FOOT	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.13	24	LF	For furnishing all materials, labor, and equipment to install traffic 24" stop bar , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.14	1,841	LF	For furnishing all materials, labor, and equipment to install 4" solid double yellow centerline , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.15	1	EA	For furnishing all materials, labor, and equipment to install R3-5R sign , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.16	1	EA	For furnishing all materials, labor, and equipment to install R3-5L sign , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.17	2	EA	For furnishing all materials, labor, and equipment to install R1-1 Sign complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per EACH	\$ _____
P.18	1	EA	For furnishing all materials, labor, and equipment to install W1-6R Sign , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per EACH	\$ _____
P.19	1	EA	For furnishing all materials, labor, and equipment to install W3-1 Sign , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per EACH	\$ _____
P.20	1	EA	For furnishing all materials, labor, and equipment to install Type III Barricade complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per EACH	\$ _____
P.21	24	LF	For furnishing all materials, labor, and equipment to install 18-inch Steel Casing Pipe Over Existing 12-inch Water Pipe , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per LF	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.22	2	EA	For furnishing all materials, labor, and equipment to install safety end treatment on existing CMP driveway culvert , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.23	1	LS	For furnishing all materials, labor, and equipment to design and install erosion control , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LUMP SUM	\$ _____
P.24	5,391	SY	For furnishing all materials, labor, and equipment to install hydromulch, including soil preparation, application, and maintenance, as specified , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____
P.25	1	LS	For furnishing all materials, labor, and equipment to provide traffic control , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LUMP SUM	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.26	1	LS	Contingency allowance , the sum of: <div style="text-align: right;">_____</div> <div style="text-align: right;">Ten-Thousand Dollars</div> <div style="text-align: right;">_____</div> <div style="text-align: right;">Zero Cents</div> (\$ <u>10,000.00</u>) per LUMP SUM	\$ <u>10,000.00</u>
SUBTOTAL PROJECT A (Bid Item P.1 - P.26)				\$ _____

PROJECT B: ROSEWOOD DRIVE PAVING IMPROVEMENTS [CIP-35]

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.27	1	LS	For furnishing all materials, labor, and equipment to mobilize & demobilize on job site , complete in place, the sum of: <div style="text-align: right;">_____</div> <div style="text-align: right;">Dollars</div> <div style="text-align: right;">_____</div> <div style="text-align: right;">Cents</div> (\$ _____) per LUMP SUM	\$ _____
P.28	1	LS	Insurance & bonds , the sum of: <div style="text-align: right;">_____</div> <div style="text-align: right;">Dollars</div> <div style="text-align: right;">_____</div> <div style="text-align: right;">Cents</div> (\$ _____) per LUMP SUM	\$ _____
P.29	2,568	SY	For furnishing all materials, labor, and equipment to perform roadway excavation with subgrade , complete in place, the sum of: <div style="text-align: right;">_____</div> <div style="text-align: right;">Dollars</div> <div style="text-align: right;">_____</div> <div style="text-align: right;">Cents</div> (\$ _____) per SQUARE YARD	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.30	1	EA	For furnishing all materials, labor, and equipment to remove and dispose of 25 linear feet of 24" CMP Culvert , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.31	1	EA	For furnishing all materials, labor, and equipment to remove and dispose of 66 linear feet of 48" CMP Culvert , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.32	166	LF	For furnishing all materials, labor, and equipment to remove & dispose concrete curb , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FEET	\$ _____
P.33	79	SY	For furnishing all materials, labor, and equipment to remove and dispose of gravel driveway , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.34	5,470	SY	For furnishing all materials, labor, and equipment to install 8" thick concrete pavement , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE FOOT	\$ _____
P.35	70	SY	For furnishing all materials, labor, and equipment to install 6" thick asphalt pavement (transition) , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.36	5,953	SY	For furnishing all materials, labor, and equipment to install 6" thick lime stabilized subgrade (6% minimum) , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____
P.37	57	SY	For furnishing all materials, labor, and equipment to remove and replace 4" thick 8-foot wide concrete path , complete in place, the sum of: _____ Dollars _____ Cents (\$ _____) per SQUARE YARD	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.38	776	SY	For furnishing all materials, labor, and equipment to install 4-inch thick, 5-foot wide concrete sidewalk , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____
P.39	62	LF	For furnishing all materials, labor, and equipment to install sidewalk curb , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FEET	\$ _____
P.40	2	EA	For furnishing all materials, labor, and equipment to install TxDOT Type 7 Barrier Free Ramp , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.41	11	SY	For furnishing all materials, labor, and equipment to install 4" thick Concrete Drive Apron , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.42	123	SY	For furnishing all materials, labor, and equipment to install commercial concrete driveway , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____
P.43	35	SY	For furnishing all materials, labor, and equipment to install gravel driveway , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____
P.44	50	LF	For furnishing all materials, labor, and equipment to install concrete street header , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.45	24	LF	For furnishing all materials, labor, and equipment to install traffic 24" stop bar , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.46	1,543	LF	For furnishing all materials, labor, and equipment to install 4" solid double yellow centerline , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.47	2	EA	For furnishing all materials, labor, and equipment to remove, store, & reset existing sign , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.48	24	LF	For furnishing all materials, labor, and equipment to install 12-inch diameter reinforced concrete pipe , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.49	2	EA	For furnishing all materials, labor, and equipment to install 12-inch safety end treatment complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.50	109	LF	For furnishing all materials, labor, and equipment to install 18-inch diameter reinforced concrete pipe , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____
P.51	1	EA	For furnishing all materials, labor, and equipment to install 18-inch safety end treatment complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.52	1	EA	For furnishing all materials, labor, and equipment to install 18-inch TxDOT Headwall complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.53	58	LF	For furnishing all materials, labor, and equipment to install 5'x3' reinforced concrete box , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LINEAR FOOT	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.54	2	EA	For furnishing all materials, labor, and equipment to install TxDOT PW Vertical Headwall complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.55	13	SY	For furnishing all materials, labor, and equipment to install grouted rock rip rap , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per SQUARE YARD	\$ _____
P.56	1	EA	For furnishing all materials, labor, and equipment to install 10' curb inlet complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per EACH	\$ _____
P.57	1	LS	For furnishing all materials, labor, and equipment to design and install erosion control , complete in place, the sum of: <hr/> Dollars <hr/> Cents (\$ _____) per LUMP SUM	\$ _____

ITEM	QUANTITY	UNITS	DESCRIPTION	TOTAL
P.58	3,452	SY	For furnishing all materials, labor, and equipment to install hydromulch, including soil preparation, application, and maintenance, as specified , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per SQUARE YARD	\$ _____
P.59	106	SY	For furnishing all materials, labor, and equipment to install grass sod, including soil preparation, turf establishment, and maintenance, as specified , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per SQUARE YARD	\$ _____
P.60	1	LS	For furnishing all materials, labor, and equipment to provide traffic control , complete in place, the sum of: <div style="text-align: right;">_____ Dollars</div> <div style="text-align: right;">_____ Cents</div> (\$ _____) per LUMP SUM	\$ _____
P.61	1	LS	Contingency allowance , the sum of: <div style="text-align: right;">_____ Ten-Thousand Dollars</div> <div style="text-align: right;">_____ Zero Cents</div> (\$ 10,000.00) per LUMP SUM	\$ 10,000.00
SUBTOTAL PROJECT B (Bid Item P.27 - P.61)				\$ _____
TOTAL AMOUNT BASE BID (P.1 – P.61) (PROJECT A & PROJECT B)				\$ _____

SUMMARY STATEMENT OF MATERIALS AND SERVICES (Base Bid - Items P.1 – P.61) (PROJECT A + B)

Total Material Cost Based Upon Estimated Quantities	\$ _____
Total Services Cost Based Upon Estimated Quantities	\$ _____
Total Contract Price Based Upon Estimated Quantities	\$ _____

NOTES:

1. **The contract is to be awarded as a single contract for both Projects A & B.**
2. The total materials cost based upon estimated quantities plus the total services cost based upon estimated quantities **MUST** equal the amount shown for the total contract price based upon the estimated quantities.
3. The Contractor will be responsible for the payment of all taxes in compliance with the laws of the State of Texas and the United States.
4. Any reference to taxes within these documents which is in conflict with the Tax Laws will be deleted from the PROJECT.
5. The bidder shall identify the number of calendar days to complete this project. **The Owner may use this information in bid evaluation.**

The Owner reserves the right to delete any bid items or portions thereof. If the Owner elects to delete any portions of the PROJECT from the contract, then the contract can be awarded on that basis.

The undersigned Bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid, and further agrees to commence work within ten (10) days after the date of written notice to do so, and substantially complete the work on which he had bid within _____ consecutive calendar days.

PROJECT B construction activities that involve any lane or road closure shall only be allowed between May 27, 2025 and August 1, 2025.

Enclosed with this proposal is a Certified Check for:

_____ Dollars (\$ _____)

or a Proposal Bond in the sum of:

_____ Dollars (\$ _____)

which it is agreed shall be collected and retained by the Owner as liquidated damages in the event this proposal is accepted by the Owner within sixty (60) days after bids are received and the undersigned fails to execute the contract and the required bond for the Owner within ten (10) days after the date said proposal is accepted, otherwise said check or bond shall be returned to the undersigned upon request.

Contractor (Full Legal Name)

By: _____
Signature

Printed Name, Title

Street Address

Mailing Address (If Different)

City State ZIP

City State ZIP

County

Telephone Number

Email Address

END OF SECTION

**SECTION 00 45 13
STATEMENT OF BIDDER'S QUALIFICATIONS**

All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

Name of Bidder: _____ Date Organized: _____

Address: _____ Date Incorporated: _____

Number of years in contracting business under present name: _____

CONTRACTS ON HAND:

Contract	Amount \$	Completion Date

Type of work performed by your company: _____

Have you ever failed to complete any work awarded to you? Y / N (Circle one) If yes, please describe work on separate sheet.

Have you ever defaulted on a contract? Y / N (Circle one) If yes, please describe on separate sheet.

List the projects most recently completed by your firm (include project of similar importance):

Project	Amount \$	Completion Date

Major equipment available for **this** contract:

Attach resume(s), including relevant work, for the principal member(s) of your organization, including the officers, as well as the proposed superintendent for the project.

Credit available: \$ _____ Bank reference: _____

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Executed this _____ day of _____, 2025.

By: (signature) _____ Title: _____

(print name) _____

**SECTION 00 45 19
NON-COLLUSION AFFIDAVIT**

State of _____ §

County of _____ §

I state that I am _____ **(Title)** of _____ **(Name of Firm)** and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

- (1) The price(s) and amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.
- (2) Neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.
- (3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.
- (4) The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.
- (5) _____ **(Name of Firm)** its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows (detail in space below or provide separate sheet):

I state that _____ **(Name of Firm)** understands and acknowledges that the above representations are material and important, and will be relied on by the City of Lavon in awarding the contract for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the Purchasing Agency of the true facts relating to the submission of this bid.

(Signature)

(Signatory's Name)

(Signatory's Title)

SWORN TO AND SUBSCRIBED
BEFORE ME THIS _____ DAY OF _____, 20____

Notary Public

My Commission Expires: _____

END OF SECTION

**SECTION 00 52 01
STANDARD FORM OF AGREEMENT**

STATE OF _____ §
COUNTY OF _____ §

THIS AGREEMENT, made and entered into this the ____ day of _____, A.D. **2025**, by and between the **City of Lavon**, of the County of Collin and State of Texas acting through its Mayor, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows:

PROJECT A

CR 484 PAVING IMPROVEMENTS – [CIP-11]

PROJECT B

ROSEWOOD DRIVE PAVING IMPROVEMENTS [CIP-35]

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Request for Proposals, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefor, as prepared by Freeman-Millican, Inc., herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Agreement, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) days after the date written notice to do so shall have been given to him, and to substantially complete the same within ____ **calendar days**, subject to such extensions of time as are provided by the General and Special Conditions.

THE OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

City of Lavon

Party of the First Part (Owner)

By:

Attest:

Party of the Second Part (Contractor)

By:

Attest:

END OF STANDARD FORM OF AGREEMENT

**SECTION 00 61 13
PERFORMANCE BOND**

Bond No. _____

STATE OF _____ §

COUNTY OF _____ §

KNOW ALL MEN BY THESE PRESENTS: That _____ (“Principal”) of the City of _____, County of _____, and State of _____, as principal, and _____ (“Surety”), authorized and licensed under the laws of the State of Texas to act as surety on bonds for principals, as surety, are held and firmly bound unto the City of Lavon, Texas (“Owner”), in the penal sum of _____ (\$_____), for the payment whereof said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally:

WHEREAS, Principal has entered into that certain written contract with Owner dated the ____ day of _____, 2025, including all documents referred to and/or made a part thereof, such as the Standard General and Supplemental Conditions of the Construction Contract, Technical Specifications and Drawings (collectively, the “Contract”), which Contract is hereby referred to herein and made a part hereof as fully and to the same extent as if copied at length herein, for the following public works project:

**PROJECT A
CR 484 PAVING IMPROVEMENTS – [CIP-11]**

**PROJECT B
ROSEWOOD DRIVE PAVING IMPROVEMENTS [CIP-35]**

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal shall fully and faithfully perform all the terms, covenants and conditions of the Contract, and shall fully indemnify and save harmless Owner from all costs and damages which Owner may suffer by reason of any Principal default, and reimburse and repay Owner all outlay and expense which Owner may incur in making good such default, then this obligation shall be null and void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said statute to the same extent as if it were copied at length herein.

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

PROVIDED FURTHER, that the penal sum of this bond shall automatically be increased by the amount of any change order or supplemental agreement which increases the Contract price, but in no event shall a change order or supplemental agreement which reduces the Contract price decrease the penal sum of this bond.

PROVIDED FURTHER, that Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of **two (2) years** from the date of completion and acceptance of the improvements by the Owner.

The undersigned agent of Surety is hereby designated by Surety as the Resident Agent in Collin County to whom any requisite notices may be delivered and upon whom service of process may be had in matters arising out of this bond.

IN WITNESS WHEREOF, Principal and Surety have signed and sealed this instrument this _____ day of _____, 2025.

PRINCIPAL

SURETY

By: _____

By: _____

Printed or Typed Name

Printed or Typed Name

Title

Title

Address:

Mailing Address:

Physical Address (if not same as mailing address):

Telephone Number (including area code):

Texas Department of Insurance Toll Free Telephone Number (address of Surety to which any notice of claim should be sent may be obtained from the Texas Department of Insurance by calling this number):
1-800-252-3439

The name and address of the Resident Agent of Surety in Texas is:

**SECTION 00 61 14
PAYMENT BOND**

Bond No. _____

STATE OF _____ §

COUNTY OF _____ §

KNOW ALL MEN BY THESE PRESENTS: That _____ (“Principal”) of the City of Lavon, County of _____, and State of _____, as principal, and _____ (“Surety”), authorized and licensed under the laws of the State of Texas to act as surety on bonds for principals, as surety, are held and firmly bound unto the City of Lavon, Texas (“Owner”), in the penal sum of _____ (\$_____), for the payment whereof said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally:

WHEREAS, Principal has entered into that certain written contract with Owner dated the ____ day of _____, 2025, including all documents referred to and/or made a part thereof, such as the Standard General and Supplemental Conditions of the Construction Contract, Technical Specifications and Drawings (collectively, the “Contract”), which Contract is hereby referred to herein and made a part hereof as fully and to the same extent as if copied at length herein, for the following public works project:

**PROJECT A
CR 484 PAVING IMPROVEMENTS – [CIP-11]**

**PROJECT B
ROSEWOOD DRIVE PAVING IMPROVEMENTS [CIP-35]**

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal and its subcontractors shall well and faithfully make payment to each and every claimant, as defined in Chapter 2253 of the Texas Government Code, as amended, supplying labor or materials in the prosecution of the work under the Contract, then this obligation shall be null and void; otherwise, to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said statute to the same extent as if it were copied at length herein.

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

The undersigned agent of Surety is hereby designated by Surety as the Resident Agent in Collin County to whom any requisite notices may be delivered and upon whom service of process may be had in matters arising out of this bond.

IN WITNESS WHEREOF, Principal and Surety have signed and sealed this instrument this _____ day of _____, 2025.

PRINCIPAL

SURETY

By: _____

By: _____

Printed or Typed Name

Printed or Typed Name

Title

Title

Address:

Mailing Address:

Physical Address (if not same as mailing address):

Telephone Number (including area code):

Texas Department of Insurance Toll Free Telephone Number (address of Surety to which any notice of claim should be sent may be obtained from the Texas Department of Insurance by calling this number):
1-800-252-3439

The name and address of the Resident Agent of Surety in Texas is:

THIS PAGE INTENTIONALLY LEFT BLANK

Upon award of the contract, this page will be replaced by certificates of insurance provided by the successful bidder as required by the Contract Documents.

PROSPECTIVE CONTRACTOR

**PLEASE PAY CLOSE ATTENTION TO THE ATTACHED INSURANCE AND BONDING REQUIREMENTS WHEN
TABULATING YOUR BID
VERIFICATION OF RECEIPT AND ACKNOWLEDGEMENT OF THIS NOTICE WILL BE REQUIRED AT BID OPENING**

SECTION 00 62 60

MINIMUM INSURANCE AND BONDING REQUIREMENTS

A. Purpose

The Owner seeks comprehensive insurance and bonding protection with limits adequate to respond to exposure confronting the Owner, the Engineer, and any other public entity (herein "Public Entity") in which the work is undertaken.

B. Conditions Applicable to All Policies:

1. Qualifications of Insurers: Insurers shall be duly licensed or approved non-admitted carriers and comply with all applicable state insurance laws and requirements of duly constituted insurance regulatory authorities.
2. Insurance Company Rating: Insurers shall maintain an A.M. Best Insurance Guide rating of at least B+VI, or better. Surplus lines carriers shall maintain an A.M. Best Insurance Guide rating of at least A+VI.
3. Signatories on Certificates of Insurance and Bond Power of Attorney or Attorney-In-Fact: Only agents licensed by the Texas Department of Insurance (TDI) to conduct business in the State of Texas, and appointed by the TDI to the company affording coverage may be a signatory on the Certificate of Insurance and Bond Power of Attorney or Attorney-In-Fact (verification with TDI will be required). In the case of surplus lines carriers or non-admitted carriers only agents licensed as surplus lines agents may sign a Certificate of Insurance on behalf of the surplus lines carrier or non-admitted carrier affording coverage (verification with TDI will be required).
4. Cancellation Notice: The Owner shall be given at least 30 days' notice by certified mail before the cancellation, or any material change in coverage.
5. Additional Insured: With the exception of Workers' Compensation policies, the Owner, or Public Entity, and Engineer shall be named as additional insureds.
6. Waiver of Subrogation: All policies must include a Waiver of Subrogation in favor of the Owner.
7. Certificate Holder: The Owner shall be listed as a certificate holder.
8. Deductibles: Deductibles may not exceed \$1,000, unless approved by the Owner.
9. Occurrence Policy: Insurers must furnish "occurrence" policies.
10. These requirements are in addition to the requirements adopted by the Texas section of the American Society of Civil Engineers.
11. The Owner reserves the right to modify these requirements in the event it deems said modifications(s) to be appropriate.

C. Comprehensive General Liability (CGL) (including independent contractor's liability, completed operations and contract liability)

1. Minimum Policy Limits (minimum combined single limits (CSL) for bodily injury and property damage)

- a. \$1,000,000 per occurrence
 - b. \$2,000,000 general aggregate
 - c. \$2,000,000 aggregate for products and completed operations coverage
2. Owner's and Contractor's Protective Liability Coverage (OC&P): Minimum policy limits of \$1,000,000
 3. XCU: XCU exclusions must be removed from the policy.
 4. Contractual Liability Insurance: If surplus lines policy, any non-standard exclusions must be attached to Certificate of Insurance.
 5. Policy Exclusions: Certificate of Insurance must identify all policy exclusions (*i.e.*, pollution, punitive damages, subcontractors).
- D. Comprehensive Auto and Truck Liability Insurance - Minimum CLS policy limits for bodily injury and property damage
1. \$500,000 per occurrence
 2. \$1,000,000 aggregate for vehicles with gross weight of 26,000 lbs or more.
 3. Coverage shall be afforded for hired and non-owned autos.
- E. Workers' Compensation
1. Authority to do Business in Texas: Insurance carrier must be authorized to conduct business in the State of Texas or must obtain a Texas endorsement.
 2. Policy Limits: Maintain minimum statutory policy limits \$100,000/\$100,000/ \$500,000
 3. Waiver of Subrogation: Policy must include a waiver of subrogation in favor of the Owner.
 4. Certificate Holder: The Owner must be listed as a certificate holder.
 5. Staff Leasing Agreement:

In the event of a staff leasing agreement:
 - a. Staff leasing company must furnish a Certificate of Insurance.
 - b. Staff leasing company must be licensed.
 - c. Staff services agreement must meet the requirements of Section 91.032 of the Texas Labor Code.
 - d. The contractor must represent in writing that only employees covered under the staff services agreement will work on the project.
 - e. Contractor and staff leasing company must furnish the Owner with 30 days advance written notice of either parties' intent to terminate the staff services agreement.
- F. Performance, Payment and Maintenance Bonds:
1. A surety company shall be listed on Treasury Circular 570. In determining whether the surety on the bond holds a certificate of authority from the United States Secretary of the Treasury, a party may conclusively rely on the list of companies holding certificates of authority as acceptable sureties on federal bonds published in the Federal Register by the United States Department of the Treasury covering the date on which the bond was executed.

2. A bond that is made, given, tendered, or filed may be executed only by a surety company that is authorized and admitted to write surety bonds in the State of Texas.
3. The bonds shall be effective for at least two years from the date final payment is made.
4. Signatories on Certificates of Insurance and Bond Power of Attorney or Attorney-In-Fact – Only agents licensed by the Texas Department of Insurance (TDI) to conduct business in the State of Texas, and appointed by TDI to the company affording coverage may be a signatory on the Bond (verification with TDI will be required).
5. Bonding company shall maintain an A.M. Best rating of A+V or better.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Adapted from document

Prepared By



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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. *Calendar Day* - "Calendar Day" is any day of the week or month, no days being excepted.
 9. *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.
 10. *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.

11. *Claim*

- 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.

12. A demand for money or services by a third party is not a Claim.

13. *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.

14. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

15. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

16. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

17. *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.

18. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

19. *Cost of the Work*—See Paragraph 13.01 for definition.

20. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

21. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

22. *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.

23. *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.
24. *Engineer*—The individual or entity named as such in the Agreement.
25. *Extra Work* - The term “Extra Work” as used in this contract shall be understood to mean and include all work that may be required by the Engineer or Owner to be done by the Contractor to accomplish any change, alteration or addition to the work shown upon the plans, or reasonably implied by the specifications, and not covered by the Contractor's Proposal, except as provided under Section 3.04, herein.
26. *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.
27. *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.
28. *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.
29. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
30. *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.
31. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
32. *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.

33. *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.
34. *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.
35. *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.
36. *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.
37. *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.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information 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.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
42. *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.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
44. *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

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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.

45. *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.
46. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
47. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
48. *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.
49. *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.
50. *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.
51. *Unit Price Work*—Work to be paid for on the basis of unit prices.
52. *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

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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.

- 53. *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.
- 54. *Working Day* - A “Working Day” is defined as any day not including Saturdays, Sundays or any legal holidays, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.
- 55. *Written Notice* - Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

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 up to six printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

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

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

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

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).
2. As provided in Article 3.03, A of the General Conditions, the Contractor is responsible for reporting discrepancies in the Contract Documents to the Engineer for interpretation and instructions. However, should the Contractor fail to report the discrepancy to the Engineer, the Contract Documents shall be interpreted in the following order with the first-listed elements having priority over subsequently listed elements:
 - a. Signed Agreement
 - b. Performance and Payment Bonds
 - c. Special Bonds (if any),
 - d. Proposal
 - e. Supplementary Conditions of the Construction Contract
 - f. Request for Proposals (Advertisement)
 - g. Technical Specifications
 - h. General Conditions of the Construction Contract
 - i. Plans

In the event differing degrees of performance are required by any of Contract Documents, the more stringent requirement, as determined by the Engineer, will be enforced. In cases of dimensional discrepancies, annotated and calculated dimensions shall govern over scaled dimensions.

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

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

4.05 *Delays in Contractor's Progress*

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

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

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

5.01 *Availability of Lands*

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

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

5.02 *Use of Site and Other Areas*

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

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

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

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

5.03 *Subsurface and Physical Conditions*

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

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

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

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

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

5.05 *Underground Facilities*

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

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

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

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

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

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

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

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

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

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

- I. To the fullest extent permitted by Laws and Regulations, 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 other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. 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, a payment bond, and a maintenance 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. The maintenance bond shall remain in effect until two (2) years after the date of final acceptance by Owner.
- 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 written request, a copy of the payment bond shall be provided to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. 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 name insured and additional insured as 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. 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.
- F. 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. Under no circumstances shall any insurance coverage maintained by Owner be considered primary.
- G. 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.
- H. 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.
- I. 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.
- J. Owner is under no obligation to provide and 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.
- K. 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.
- L. 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.
- F. All losses or damage arising out of the nature of the work, or from the action of the elements, or from groundwater, or from any unusual obstruction or difficulty, or any other natural or existing circumstances either known or unforeseen, which may be encountered in the prosecution of the work, shall be sustained and borne by the Contractor at his own cost and expense.

6.05 *Property Losses; Subrogation*

- A. All policies purchased in accordance with Paragraph 6.04, expressly including 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), shall 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 of the insureds thereunder, including without limitation Owner or against Engineer or their respective consultants, or their respective officers, directors, members, partners, employees, agents, consultants, or subcontractors.
- B. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions meeting the same requirements as those of Contractor under these General Conditions and Contract Documents, including without limitation the additional insured and waiver of subrogation requirements for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.06 *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.
- D. The Contractor shall employ only competent, efficient workers and shall not use any unfit person on the work or one not skilled in the work assigned to him; and shall at all times maintain good order among his employees.

Whenever the Owner shall inform the Contractor in writing that, in his opinion, any employee is unfit, unskilled, disobedient or is disrupting the orderly progress of the work, such employee shall be removed from the work and shall not again be employed on it.

Under urgent circumstances, the Owner may orally require immediate removal of an employee for cause, to be followed by written confirmation.

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.
- D. Unless otherwise expressly provided in the contract drawings or specification, the work shall be performed according to the best modern practice with materials and workmanship of the highest quality and suitable for their purpose. The Owner shall judge and determine the Contractor's compliance with these requirements. All materials used in the construction of this project shall be new.
- E. All materials salvaged from the Owner's property shall remain the property of the Owner. The Contractor shall take reasonable care not to damage materials which are to be removed as a part of this construction. Should the Owner decline to accept the salvaged materials, the Contractor shall dispose of the materials as described herein for construction debris.

7.05 *"Or Equals"*

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

the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

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

7.06 Substitutes

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

review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, where applicable, 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, 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 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.
- B. This contract is issued by an organization that qualifies for exemption pursuant to the provisions of Section 151.309 of VTCA Tax Code. According to amended Section 151.311 of the VTCA Tax Code, the Contractor performing this separated contract is considered a seller of the materials that will remain as an improvement to the realty on this project. To be exempt from sales tax on these materials, the Contractor must issue a resale certificate to its supplier(s) and obtain an exemption certificate from the Owner.

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 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.
- D. The contractor shall fully comply with all local, state and federal codes and ordinances applicable to this contract and the work to be done thereunder, which exist or which may be enacted later by governmental bodies having jurisdiction or authority for such enactment.
- E. Codes and ordinances having jurisdiction and specified codes shall serve as minimum requirements, but, if the contract documents indicate requirements which are in excess of those minimum requirements, then the requirements of the contract documents shall be

followed. Should there be any conflicts between the contract documents and codes, or any ordinances, report these with the bid.

7.12 *Record Documents*

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

7.13 *Safety and Protection*

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

Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

- 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
 3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
 1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.
- D. *Resubmittal Procedures for Shop Drawings and Samples*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
 2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

- E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*
1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is

not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;
 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. Use or occupancy of the Work or any part thereof by Owner;
 5. Any review and approval of a Shop Drawing or Sample submittal;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.
- F. All subcontractors', manufacturers' and suppliers' warranties and guarantees, express or implied, respecting any part of the work and any materials used therein, shall be obtained and enforced by the Contractor for the benefit of the Owner without the necessity of separate transfer or assignment thereof; provided, that if directed by the Engineer, the Contractor shall assign such warranties and guarantees in writing to the Owner.

7.18 INDEMNIFICATION

- A. TO THE FULLEST EXTENT PERMITTED BY LAWS AND REGULATIONS, AND IN ADDITION TO ANY OTHER OBLIGATIONS OF CONTRACTOR UNDER THE CONTRACT OR OTHERWISE, CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM AND AGAINST ALL CLAIMS, COSTS, LOSSES, DAMAGES, AND JUDGMENTS (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS, AND ALL COURT 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.

- A. THE INDEMNIFICATION OBLIGATIONS OF CONTRACTOR UNDER PARAGRAPH 7.18.A SHALL NOT EXTEND TO THE LIABILITY OF ENGINEER AND ENGINEER'S OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS ARISING OUT OF:**
- 1. THE PREPARATION OR APPROVAL OF, OR THE FAILURE TO PREPARE OR APPROVE MAPS, DRAWINGS, OPINIONS, REPORTS, SURVEYS, CHANGE ORDERS, DESIGNS, OR SPECIFICATIONS; OR**
 - 2. GIVING DIRECTIONS OR INSTRUCTIONS, OR FAILING TO GIVE THEM, IF THAT IS THE PRIMARY CAUSE OF THE INJURY OR DAMAGE.**

7.19 *Delegation of Professional Design Services*

- A. 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 directly 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 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 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. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall 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.

9.13 *Collateral Contracts*

A. The Owner agrees to provide by separate contract or otherwise, all labor and material essential to the completion of the work specifically excluded from this contract, in such a manner as not to delay the progress of the work, or damage said Contractor, except where such delays are specifically mentioned elsewhere in the Contract Documents.

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.

- D. No verbal conversation, understanding or agreement with any officer or employee or agent of the Owner, either before or after the execution of the contract, shall affect or modify any of the terms, conditions or obligations contained in the contract documents.

11.02 *Change Orders*

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

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

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

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

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

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

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

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

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

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

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

resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

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

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

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

be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

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

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

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

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions,

drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

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

13.03 Unit Price Work

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

E. *Adjustments in Unit Price*

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

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

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

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

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

14.03 *Defective Work*

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

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

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

14.06 *Owner May Stop the Work*

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

right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

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

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

15.01 Progress Payments

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

equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. When progress payments are made, the Owner shall then pay the Contractor the total amount for Work completed in the approved Application for Payment, less 5 percent of the amount thereof, which 10 percent shall be retained until final payment, and further less all previous payments and all further sums that may be retained by the Owner under the terms of this Agreement.

C. *Review of Applications*

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

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due*
1. Fifteen days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 15.01.E) become due, and when due will be paid by Owner to Contractor.
- E. *Reductions in Payment by Owner*
1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

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

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

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

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

15.04 *Partial Use or Occupancy*

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

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

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

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.
- B. If the work is found to be completed in accordance with the Contract Documents, the Engineer, when requested to do so by the Contractor, shall issue to the Owner and the Contractor the Certificate of Completion and Acceptance or to advise the Contractor in writing of the reason for non-acceptance. All project warranties and guarantees shall begin not before the date the Certificate of Completion and Acceptance is issued by the Engineer.

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.

F. *Payments Withheld*

1. The Owner may, on account of subsequently discovered evidence, withhold or nullify the whole or part of any certificate to such extent as may be necessary to protect the Owner from loss on account of:
 - a. Defective work not remedied.
 - b. Claims filed or reasonable evidence indicating probable filing of claims.
 - c. Failure of the Contractor to make payments properly to sub-contractors or for material or labor.
 - d. Damage to another contractor.
 - e. Reasonable doubt that the work can be completed for the unpaid balance of the contract amount.
 - f. Reasonable indication that the work will not be completed within the contract time.
2. When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the Owner, which will protect the Owner in the amount withheld, payment shall be made for amounts withheld because of them.

G. *Delayed Payments*

Should the Owner fail to make payment to the Contractor of the sum named in any partial or final statement, when payment is due, then the Owner shall pay to the Contractor, in addition to the sum shown as due by such statement, interest thereon at the rate of six (6) per cent per annum, unless otherwise specified, from date due as provided under "Progress Payments" and "Final Payment," until fully paid, which shall fully liquidate any injury to the Contractor growing out of such delay in payment, but the right is expressly reserved to the Contractor in the event payments be not promptly made, as provided under "Progress Payments," to at any time thereafter treat the contract as abandoned by the Owner and recover compensation, as provided under "Abandonment by Contractor" or "Abandonment by Owner," unless such payments are withheld in accordance with the provisions of "Payment Withheld."

H. *Payment for Labor and Materials; No Liens*

The Contractor for himself or any of his subcontractors shall pay all indebtedness that may become due to any person, firm or corporation having furnished labor, material or both in the performance of this contract. It shall be the responsibility of each person, firm or corporation claiming to have furnished labor, materials or both, in connection with this contract, to protect his or its interest in the manner prescribed by applicable laws of the State of Texas; provided, however that as this contract provides for a public works project, no lien of any kind shall ever exist or be placed against the work or any portion thereof, or any public funds or retainage held by the Owner; and any subcontractor shall look solely to the Contractor and the payment bond surety, and not the Owner, for payment of any outstanding amounts due for labor, materials or any other indebtedness in connection with the work.

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 *Two Year Correction Period*

- A. If within two (2) years after the date of Certificate of Completion and Acceptance (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) (the "Correction Period"), 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 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 issuance of Certificate of Completion and Acceptance 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. Terms of a maintenance bond provided by Contractor pursuant to the Contract documents shall control in the event of a conflict between the terms of the maintenance bond and this Section. 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.

15.09 *Delays; Extension of Time; Liquidated Damages*

- A. The Contractor shall be entitled to an extension of working time under this contract only when claim for such extension is submitted to the Owner in writing by the Contractor within seven days from and after the time when any alleged cause of delay shall occur; and then only when such time is approved by the Owner. In adjusting the contract working time for the completion of the project, unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to inability to obtain supplies and materials, acts of God, or the public enemy, acts of the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather conditions or delays of subcontractors due to such causes beyond their control shall be taken into consideration.
- B. If the satisfactory execution and completion of the contract should require work and materials in greater amounts or quantities than those set forth in the contract, requiring more time for completion than the anticipated time, then the contract working time shall be equitably increased, but not more than in the same proportion as the cost of the additional work bears to the cost of the original work contracted. No allowances shall be made for delays or suspension of the performance of the work due to the fault of the Contractor.
- C. No adjustment to working time shall be made if, concurrently with the equitable cause for delay, there existed a cause for delay due to the fault or negligence of the Contractor, his agents, employees or subcontractors; and no adjustment shall be made to the contract price and the Contractor shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay resulting in adjustment to the working time hereunder, including delays caused by the acts or negligence of the Owner. Notwithstanding any other provision of the contract documents, all claims for extension of working time must be submitted in accordance with paragraph 12.03, and no act of the Owner shall be deemed a waiver or entitlement of such extension.

15.10 *Liquidated Damages for failure to complete on time:*

- A. The amount of liquidated damages for this project is \$ 500.00 per calendar day.
- B. The sum of money thus deducted for such delay, failure or non-completion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the Contractor shall be in default after the time stipulated in the contract by and between Owner and Contractor because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner in such event would sustain; and said amounts are agreed to be the amounts of damages which the Owner would sustain and which shall be retained from the monies due, or that may become due, the Contractor under this contract; and if said monies are insufficient to cover the amount owing, then the Contractor or his surety shall pay any additional amounts due.
- C. Where there are multiple items of work that each have a separate time of completion, liquidated damages shall be applied to each time of completion. Liquidated damages shall be

applied for each day from the specified time of completion until the requirements for that item of work have been met.

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 and consistently maintain sufficient skilled workers at the site or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten (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 or applicable law.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven (7) days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure. Owner shall have the sole discretion to determine if Contractor has met this requirement.

- 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, performance or maintenance 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 seven (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 incurred 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, seven (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 as allowed by law. 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.

16.05 *Termination of Contract in Case of National Emergency*

- A. Whenever, because of a national emergency, so declared by the President of the United States or other lawful authority, it becomes impossible for the Contractor to obtain all the necessary labor, material and equipment for the prosecution of the work with reasonable continuity for a period of two months, the Contractor shall within seven (7) days notify the Owner in writing, giving a detailed statement of the efforts which have been made and listing all necessary items of labor, material and equipment not obtainable. If, after investigation, the Owner finds that such conditions exist and that the inability of the Contractor to proceed is not attributable in whole or in part to the fault or neglect of the Contractor, then if the Owner cannot after reasonable effort assist the Contractor in procuring and making available the necessary labor, materials and equipment within thirty (30) days, the Contractor may request the Owner to terminate the contract and the Owner shall within thirty (30) days comply with the request, and the termination shall be based on a final settlement, which shall include, but not be limited to, the payment for all work executed and any loss sustained upon any plant or materials and reasonable profit thereon, but not anticipated profits on work which has not been performed.

16.06 *Abandonment by Contractor*

- A. In case the Contractor should abandon and fail or refuse to resume work within ten (10) days after written notification from the Owner, or the Engineer, or if the Contractor fails to comply with the orders of the Engineer, when such orders are consistent with the Contract Documents, then, and in that case, where performance and payment bonds exist, the Sureties on these bonds shall be notified in writing and directed to complete the work, and a copy of said notice shall be delivered to the Contractor.
- B. After receiving said notice of abandonment the Contractor shall not remove from the work any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for the work, may be held for use on the work by the Owner or the Surety on the performance bond, or another contractor in completion of the work; and the Contractor shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Articles 10 and 12, it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement.
- C. Where there is no performance bond provided or in case the Surety should fail to commence compliance with the notice for completion hereinbefore provided for, within ten (10) days after receipt of such notice, then the Owner may provide for completion of the work in either of the following elective manners:

1. The Owner may thereupon employ such force of men and use such machinery, equipment, tools, materials and supplies as said Owner may deem necessary to complete the work and charge the expense of such labor, machinery, equipment, tools, materials and supplies to said Contractor, and expense so charged shall be deducted and paid by the Owner out of such moneys as may be due, or that may thereafter at any time become due to the Contractor under and by virtue of this Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the Contractor, then said Contractor shall receive the difference. In case such expense is greater than the sum which would have been payable under this contract, if the same had been completed by said Contractor, then the Contractor and/or his Surety shall pay the amount of such excess to the Owner; or
 2. The Owner under sealed bids, after give (5) days notice published one or more times in a newspaper having general circulation in the county of the location of the work, may let the contract for the completion of the work under substantially the same terms and conditions which are provided in this contract. In case any increase in cost to the Owner under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the Contractor and the Surety shall be and remain bound therefor. However, should the cost to complete any such new contract prove to be less than what would have been the cost to complete under this contract, the Contractor and/or his Surety shall be credited therewith. When the work shall have been substantially completed the Contractor and his Surety shall be so notified and the Certificates of Completion and Acceptance shall be issued. A complete itemized statement of the contract accounts, certified to by the Engineer as being correct, shall then be prepared and delivered to the Contractor and his Surety, whereupon the Contractor and/or his Surety, or the Owner as the case may be, shall pay the balance due as reflected by said statement, within fifteen (15) days after the date of such Certificates of Completion and Acceptance.
- D. In the event the statement of accounts shows that the cost to complete the work is less than that which would have been the cost to the Owner had the work been completed by the Contractor under the terms of this contract; or when the Contractor and/or his Surety shall pay the balance shown to be due by them to the Owner, then all machinery, equipment, tools, materials or supplies left on the site of the work shall be turned over to the Contractor and/or his Surety. Should the cost to complete the work exceed the contract price, and the Contractor and/or his Surety fail to pay the amount due the Owner within the time designated hereinabove, and there remains any machinery, equipment, tools, materials or supplies on the site of the work, notice thereof, together with an itemized list of such equipment and materials, shall be mailed to the Contractor and his Surety at the respective addresses designated in this contract, provided, however, that actual written notice given in any manner will satisfy this condition. After mailing, or other giving of such notice, such property shall be held at the risk of the Contractor and his Surety subject only to the duty of the Owner to exercise ordinary care to protect such property. After fifteen (15) days from the date of said notice the Owner may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the Contractor and his Surety. Such sale may be made at either public or private sale, with or without notice, as the Owner may elect. The Owner shall release any machinery, equipment, tools, materials, or supplies, which remain on the work, and belong to persons other than the Contractor or his Surety, to their proper owners. The books on all operations provided herein shall be open to the Contractor and his Surety.

16.07 *Abandonment by Owner*

- A. In case the Owner shall fail to comply with the terms of this contract, and should fail or refuse to comply with said terms within ten (10) days after written notification by the Contractor, then the Contractor may suspend or wholly abandon the work, and may remove therefrom all machinery, tools and equipment, and all materials on the site of work that have not been included in payments to the Contractor and have not been wrought into the work. And thereupon the Engineer shall make an estimate of the total amount earned by the Contractor, which estimate shall include the value of all work actually completed by said Contractor (at the prices stated in the attached proposal where unit prices are used), the value of all partially completed work at a fair and equitable price, and the amount of all Extra Work performed at the prices agreed upon, or provided for by the terms of this contract, and a reasonable sum to cover the cost of any provisions made by the Contractor to carry the whole work to completion and which cannot be utilized. The Engineer shall then make a final statement of the balance due the Contractor by deducting from the above estimate all previous payments by the Owner and all other sums that may be retained by the Owner under the terms of this Agreement and shall certify same to the OWNER who shall pay to the Contractor on or before thirty (30) days after the date of the notification by the Contractor the balance shown by said final statement as due the Contractor, under the terms of this Agreement.

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

18.11 *Unlawful Provisions Deemed Stricken*

- A. If this contract contains any unlawful provisions not an essential part of the contract and which shall not appear to have been a controlling or material inducement to the making thereof, such unlawful provisions shall be of no effect. Upon the application of either party, the unlawful part shall be considered stricken from the contract without affecting the remainder of the contract.

18.12 *Service of Notices*

- A. The Owner and the Contractor shall each designate addresses where all notices, directions or other communication may be delivered, or to which they may be mailed.
- B. Notices to the surety or sureties on contract bonds shall be directed or delivered to the home office, or to the agent or agents who executed the bonds on behalf of the surety or sureties, or to their designated agent for delivery of notices.
- C. Actual delivery of any such notice, direction or communication to the aforesaid places, or depositing it in a postpaid wrapper addressed thereto in any post office regularly maintained by the United States Postal Service shall be conclusively deemed to be sufficient service thereof upon the above persons as of the date of such delivery or deposit.
- D. The designated addresses may be changed at any time by an instrument in writing executed by the party changing the addresses and delivered to the other party.
- E. Nothing herein contained shall, however, be deemed to preclude or tender inoperative the service of any notice, direction or communication upon the above parties personally, or, if the Contractor be a corporation, upon any officer or director thereof.

18.13 *All Legal Provisions Included*

- A. It is the intent and agreement of the parties of this contract that all legal provisions of law required to be inserted herein, shall be and are inserted herein. If through mistake or oversight, however, any such provision is not herein inserted, or is not inserted in proper

form, then upon application of either party, the contract shall be amended so as to strictly comply with the law and without prejudice to the rights of either party hereunder.

18.14 *No Waiver of Legal Rights*

- A. Inspection by the Engineer, any order, measurement, quantity or certificate by the Engineer, any order by the Owner for payment of money, any payment for or acceptance of any work, any extension of time or possession taken by the Owner, shall not operate as a waiver of any provisions of the contract or any power therein reserved to the Owner of any rights or damages therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The Owner reserves the right to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the contract documents. The Owner reserves the right to recover by process of law sums as may be sufficient to correct any error or make good any deficiency in the work resulting from such error, dishonesty or collusion by the Contractor or his agents and the Engineer or his assistants, discovered in the work after the final payment has been made.
- B. Neither final acceptance of the work, nor final payment, shall relieve the Contractor of the responsibility for faulty materials or workmanship, and the Contractor shall promptly remedy any defects due thereto and pay for any damage to other work resulting therefrom. Likewise, neither final acceptance nor final payment, nor partial or entire use or occupancy of the work by the Owner shall constitute acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability with respect to any expressed or implied warranties or responsibility for faulty materials or workmanship, whether same be patently or latently defective.

18.15 *Obligation to Perform Functions*

- A. Any failure or neglect on the part of Owner, Engineer or inspectors to enforce provisions herein dealing with supervision, control, inspection, testing or acceptance and approval of the work shall never operate to relieve Contractor from full compliance with the contract documents nor render Owner liable to Contractor for money damages, extensions of time or increased compensation of any kind.

**SECTION 00 73 46
WAGE DETERMINATION SCHEDULE**

The Owner has determined that the following are the prevailing wage rates for the general classifications of laborers expected to work on the Project:

Classification	Basic Hourly Rates
Air Tool Operator	\$ 7.50
Asphalt Heater Operator	9.00
Asphalt Raker	9.00
Asphalt Shoveler	8.25
Batching Plant Scale Operator	9.50
Batterboard Setter	8.45
Carpenter	10.10
Concrete Finisher (PAVING)	9.20
Concrete Finisher (Structures)	9.90
Concrete Rubber	8.25
Electrician	11.95
Flagger	7.25
Form Builder (Structures)	8.20
Form Liner - Paving & Curb	8.50
Form Setter - Paving & Curb	8.55
Form Setter - Structures	8.10
Laborers: Common	7.25
Laborers: Utility	7.50
Mechanic	11.00
Oiler	8.50
Painter (Structures)	10.00
Pipelayer	8.80
Pneumatic Mortar Operator	8.25

Classification	Basic Hourly Rates
Power equipment operators:	
Asphalt Distributor	\$ 8.85
Asphalt Paving Machine	9.95
Broom or Sweeper Operator	8.75
Bulldozer 150 HP or less	9.45
Bulldozer over 150 HP	9.55
Concrete Paving Curing Machine	8.40
Concrete Paving Finishing Machine	9.05
Concrete Paving Form Grader	10.75
Concrete Paving Joint Machine	9.00
Concrete Paving Saw	9.30
Concrete Paving Spreader	9.60
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel (1.5 cu yd and over)	10.90
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel (less than 1.5 cu. yd.)	10.90
Crusher or Screening Plant	8.25
Form Loader	7.25
Foundation Drill Operator (Truck Mounted)	10.05
Front End Load (Over 2.5 cu yd)	9.10
Front End Loader (2.5 cu yd or less)	9.05
Mixer (16 CF & less)	7.25
Motor Grader Operator (Fine Grade)	10.75
Motor Grader Operator	10.00
Roller, Pneumatic (self-propelled)	8.25
Roller, Steel Wheel (Plant-Mix Pavement)	8.10
Roller, Steel Wheel other - Flat Wheel or Tamping)	8.05
Scraper (17 cu yd & less)	7.90
Scraper (over 17 cu yd)	8.30

Classification	Basic Hourly Rates
Self-Propelled Hammer	\$ 8.25
Side Boom	7.25
Tractor (crawler) 150 HP & less	9.00
Tractor (crawler) over 150 HP	9.30
Tractor (pneumatic) 80 HP & less	8.35
Tractor (pneumatic) over 80 HP	8.40
Traveling Mixer	8.25
Trenching Machine, Heavy	9.00
Trenching Machine, Light	8.80
Reinforcing Steel Setter: PAVING	8.25
Reinforcing Steel Setter: STRUCT	9.60
Servicer	7.55
Sign Erector	8.30
Spreader Box Operator	8.30
Truck drivers: Lowboy - Float	8.90
Truck drivers: Single Axle, Heavy	8.40
Truck drivers: Single Axle, Light	8.25
Truck drivers: Tandem Axle or Semi-trailer	8.25
Truck drivers: Transit-Mix	8.25
Truck drivers: Winch	8.25
Welder	9.85

END OF SECTION

SECTION 01 11 00 SUMMARY OF WORK

PART 1: GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

The work to be performed under the provisions of these Contract Documents consists of furnishing all materials, equipment, and tools; performing all necessary labor and supervision; and all work appurtenant for the Miscellaneous Paving Improvements project. The work includes but is not necessarily limited to furnishing all materials, equipment, and tools; performing all necessary labor and supervision; and all work appurtenant for the installation of approximately 11,100 S.Y. of reinforced concrete pavement and all appurtenances, complete in place.

PROJECT B (Rosewood Drive) construction activities that involve closure of any lanes or full street can only be performed between May 27, 2025 and August 1, 2025. All lanes of traffic shall be open before and after those dates.

1.02 CONTRACTS

A. Contract Documents

1. The Contract Documents under which this project is to be constructed include the following:

- a. Request for Proposals
- b. Instructions to Bidders.
- c. Proposal.
- d. Contract including the General Conditions.
- e. Bond Forms
- f. Specifications
- g. Drawings and Details

2. Contract Drawings and Specifications

The Owner shall furnish the Contractor, without charge, two (2) copies of the executed contract and specifications and four (4) hard copies of drawings (full size) and one (1) electronic copy (.pdf). At least one hard copy of all drawings and specifications shall be accessible at all times to the Owner at the job site. **The drawings on site MUST be stamped "Approved for Construction" or similar.**

3. Supplemental Drawings and Specifications

In order to carry out the intent of the contract documents and to assist the Contractor in performing his work, the Owner, after the execution of the contract, may, by supplemental drawings, specifications or otherwise, furnish additional information or instructions as may be necessary for construction purposes.

All such supplemental drawings, specifications or instructions are intended to be consistent with the contract documents and reasonably inferable therefrom. Therefore, no extra costs shall be allowed by the Owner on a claim that particular supplemental drawings, specifications or instructions differ from the requirements of the contract documents, incurring extra costs,

unless the Contractor has first brought the matter, in writing, to the Owner's attention for adjustment before proceeding with the work covered by such.

If the Owner shall decide that there is no departure from the requirements of the contract documents, the Contractor shall then proceed with the work as shown, specified or directed. If the Owner shall decide that extra work is involved, he shall so modify the supplemental drawings, specifications or instructions to eliminate the extra work, or cause a written change order to be issued.

4. Errors and Corrections in Drawings and Specifications

The Contractor shall not take advantage of any apparent errors, omissions or discrepancies in the drawings or specifications; and the Engineer shall be permitted to make such corrections or interpretations as may be necessary for the fulfillment of the intent of the contract documents. In case of any errors, omissions or discrepancies in the drawings or specifications, the Contractor shall promptly submit the matter to the Owner who, in turn, shall promptly make a determination and issue the necessary instructions in writing. Any adjustment by the Contractor without this determination and instructions shall be at the Contractor's own risk and expense. The work is to be made complete as intended by the contract documents.

B. Alteration of Plans and Specifications

The Owner reserves the right to make such changes in the plans and specifications and in the character of the work as may be necessary or desirable to ensure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the contract and bonds. Such changes shall be issued by the Engineer.

1.03 CONTRACTOR USE OF PREMISES

A. Land for Construction Purposes

1. The Contractor shall confine his operations within the Owner's easements and property. The Owner reserves the right to limit the Contractor's access to certain portions of his property to limit interference with the Owner's operations. The Owner will designate areas that may be used by the Contractor for storage of materials and equipment, employee parking and for other construction uses.
2. Contractor shall be solely responsible for obtaining and shall pay all costs in connection with any additional work area, or storage site access to the site. The Contractor shall submit to the Owner, written agreements with private property owners for the use of their land for construction purposes.
3. It shall be understood that the responsibility for protection and safekeeping of equipment and materials on or near the site will be entirely that of the Contractor and that no claim shall be made against the Owner by reason of any act of an employee or trespasser. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials and equipment, the Contractor owning or responsible for the stored material, or equipment, shall immediately move same. No materials or equipment may be placed upon the property until Owner has agreed to the location contemplated by the Contractor to be used for storage.

B. Damage to Existing Property

1. The Contractor will be held responsible for any damage to existing structures, work, plantings, materials, equipment or other improvements because of his operations and shall repair or replace any damaged structures, work, plantings, materials, equipment or other improvements to the satisfaction of, and at no additional cost to the Owner.
2. The Contractor shall protect all existing structures, work, plantings, materials, equipment or other improvements and property from damage and shall provide bracing, shoring or other work necessary for such protection at no additional cost to the Owners.
3. The Contractor shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges or other public or private property that may be caused by transporting equipment, materials or men to or from work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

C. Protection of Persons and Property

The Contractor shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise to protect persons and property while said persons or property are approaching, leaving or within the work site or any are adjacent to said work site. No separate compensation shall be paid to the Contractor for the installation or maintenance of any warning devices, barricades, lights, signs or any other precautionary measures required by law or otherwise for the protection of persons or property.

The Contractor shall assume all duties owed by the Owner to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

Where the work is carried on in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the Contractor shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warning devices, barricades, lights, signs and other precautionary measures for the protection of persons or property as may be prudent or necessary, or as are required by law. The Contractor's responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs and lights and other precautionary measures shall not cease until the project shall have been completed and accepted by the Owner, and shall cease when the certificate of acceptance is issued by the Owner.

If the Owner discovers that the Contractor has failed to comply with the applicable federal and state law (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs or other precautionary measures for the protection of persons or property), the Owner may order the Contractor to take such additional precautionary measures as required by law to be taken to protect persons and property.

In addition, the Contractor shall be held responsible for all damages to the work and other public or private property due to the failure of warning devices, barricades, signs, lights or other precautionary measures in protecting said property; and whenever evidence is found of such damage, the Owner may order the damaged portion immediately removed and replaced by and at the cost and expense of the Contractor.

Minimum standards for safeguarding pedestrian and vehicular traffic are contained in the "Manual of Uniform Traffic Control Devices," Federal Highway Administration of the U.S. Department of Transportation, and the "Texas Manual of Uniform Traffic Control Devices," Texas State Department of Transportation.

D. Protection of Work

During performance and up to date of final acceptance, the Contractor shall be under the absolute obligation to protect the finished work against any damage, loss or injury. In the event of such damage, loss or injury, the Contractor shall promptly replace or repair such work, whichever the Owner shall determine to be preferable. The obligation to deliver finished work in strict accordance with the contract prior to final acceptance shall be absolute and shall not be affected by the Owner's approval of or failure to prohibit means and methods of construction used by the Contractor. All risk of loss or damage to the work shall be borne solely by the Contractor until final completion and acceptance of all work by the Owner, as evidenced by the Owner's issuance of a certificate of acceptance.

END OF SECTION

**SECTION 01 29 00
PAYMENT PROCEDURES**

PART 1: GENERAL

1.01 MEASUREMENT

A. General

1. This is a unit price project. The unit bid price(s) shall cover all work described in the proposal. All other work shown on the contract drawings, or required by the specifications or other contract documents shall be subsidiary to the bid items described in the proposal. All costs in connection with the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant equipment, and tools; and performing all labor and supervision necessary to complete the work shall be included in the bid price(s) named in the proposal.
2. No item required by the Contract Documents for the proper and successful completion of the work will be paid for outside of or in addition to the price submitted in the proposal. Work done solely for the convenience of the Contractor shall not be measured and paid for unless such work has been authorized in writing by the Owner or his representative. Work done of a temporary nature will not be measured or paid for.

1.02 PAYMENT

Payment for all work performed under the proposed Contract will be made by the Owner in the manner set forth in the General Contract Conditions for Construction and the Supplementary Conditions of the Construction Contract.

END OF SECTION

**SECTION 01 31 19
PROJECT MEETINGS**

PART 1: GENERAL

1.01 PRECONSTRUCTION CONFERENCE

Before any construction begins on the project a preconstruction conference may be held at the direction of the Engineer. The date, time and location of meeting will be selected by the Engineer. The Contractor or his Contract Coordinator, the Contractor's superintendent and any key foreman shall be present at this conference. The Engineer, his field representative and the Owner or his representatives may also be present. At this conference, if requested, the Contractor shall present the following submittals as required in Section 01 33 01 – Submittal Procedures:

- A. Construction Schedule
- B. Schedule of Monthly Payments
- C. Schedule of Values

1.02 PROGRESS MEETINGS

At the direction of the Engineer, the Contractor and his superintendent shall attend job progress meetings to discuss critical aspects in the prosecution of the work. The Owner or his representatives may also attend these meetings. The meetings will be held at a place and time selected by the Engineer.

END OF SECTION

SECTION 01 33 01 SUBMITTAL PROCEDURES

PART 1: GENERAL

1.01 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Section Includes:
 - 1. Submittal procedures.
 - 2. Shop drawings.
 - 3. Product data.
 - 4. Manufacturers' instructions.
 - 5. Schedule of submittals.

1.02 DEFINITIONS

- A. Shop Drawings: Include drawings, diagrams, schedules and other data specially prepared for the Work by Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. Product Data: Include illustrations, standard schedules, performance charts, instructions, brochures, diagrams, test data and other information furnished by Contractor to illustrate material, product or system for some portion of the Work.

1.03 GENERAL REQUIREMENTS

- A. Submit in pdf format via email or posted to project collaboration site, all shop drawings, product data, and manufacturer's instructions. Submittals will be reviewed, stamped and returned via email or project collaboration site.**
- B. Submit under Engineer accepted form transmittal letter. Identify Project by title and number. Identify Work and product by Specification section and Article number.**
- C. Provide complete submittals for each specified product, system or equipment. Partial or incomplete submittals will be returned, without review, for re-submission.
- D. Schedule submittals to expedite Project in accordance with approved Construction Progress Schedules and in such sequence as to cause no delay in the Work or in the activities of Owner or of separate contractors. No extension of contract time will be authorized due to failure to transmit submittals in sufficient advance of the Work to permit processing.
- E. Deliver submittals to Engineer's office. Submittals accepted only from Contractor.
- F. Submit product data, shop drawings, samples, calculations, certificates, manufacturer's instructions, and other items requested within each specification section.
- G. Identify Project, Contractor, subcontractor or supplier, pertinent Drawing sheets and detail numbers, and Specification section number, as appropriate.

- H. Apply Contractor's stamp, sign or initial and date certifying that review, verification of products, field dimensions, adjacent construction Work, and coordination of information, is in accordance with requirements of Work and Contract Documents.
- I. Submittals will be returned without processing if they have not been reviewed and stamped by Contractor for coordination of work and conformance with the Drawings and Specifications prior to submission to Engineer, if they are not initialed or signed by authorized person, if they are not dated, or if it becomes evident that they have not been properly reviewed. Delays resulting therefrom are not responsibility of Engineer.
- J. Clearly identify on submittals, or in writing at time of submission, deviations in submittals from requirements of Contract Documents.
- K. Do not perform Work on any element requiring submittal and review of shop drawings, product data, samples, or other similar submittals until respective submittal has been approved by Engineer.

1.04 SHOP DRAWINGS

- A. Transmittal:
 - 1. Submit in accordance with approved Progress Schedule and in such sequence to avoid delay in the Work or work of other contracts.
 - 2. Submit each with form attached.
 - 3. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- B. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- C. Provide 4 by 4 inch blank space on each submittal for Engineer's stamp as applicable.
- D. **Clearly identify applicable sections and/or model numbers being submitted. Sheets without clear identification of which item is being submitted will be returned, without review, for re-submission.**
- E. Schedule submittals to expedite the Project, and deliver to Engineer at business address.
- F. Coordinate submittals into logical groupings to facilitate interrelation of the several items.
- G. Check and coordinate shop drawings of any section or trade with requirements of other sections or trades and as necessary for proper coordination and complete installation of Work.
- H. Do not use Contract Drawings for shop drawings. Provide original shop drawings with changes from Contract Drawings clearly indicated.
- I. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- J. Existing Conditions:
 - 1. Show locations of existing conditions which affect installation of new Work.
 - 2. Show details of existing conditions and proposed modifications as requested by Engineer.
- K. Revise and resubmit submittals as required, identify all changes made since previous submittal.

- L. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.05 CHANGED CONDITION DRAWINGS

- A. When specified in individual Sections, submit changed condition drawings in same quantities as for shop drawings.
- B. Where conditions differ from Contract Documents or shop drawings and remedial work is necessary, submit drawing showing changes.
- C. Submit drawing bearing seal and signature of professional engineer responsible for design.
- D. Indicate differing condition and required work caused by differing condition.

1.06 PRODUCT DATA

A. Transmittal:

1. Submit under Engineer accepted form transmittal letter. Identify Project by title and number. Identify Work and product by Specification section.
2. For hard copies, submit the number of copies which the Contractor requires, plus 2 copies which will be retained by the Engineer.

B. **Submit only pages which are pertinent.**

- C. Mark each copy of standard printed data to identify pertinent products, models, options, and other data referenced to Specification Section and Article number.
- D. Modify manufacturer's standard data, schematic drawings, and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- E. After review, distribute copies of reviewed product data to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.07 CONTRACTOR REVIEW

- A. Review submittal prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittal with requirements of Work and of Contract Documents.
- C. Sign or initial in a rubber-stamped review block format, each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify Engineer in writing at time of submittal of any deviations from requirements of Contract Documents.
- D. Do not fabricate products or begin work which requires submittal until return of submittal with Engineer acceptance.
- E. Responsibility for errors and omissions in submittal is not relieved by Engineer's review of submittal.

- F. Responsibility for deviations in submittal from requirements of Contract Documents is not relieved by Engineer's review of submittal, unless Engineer gives specific written acceptance of deviations. Engineer will review submittal for general conformance to design intent only.

1.08 ENGINEER REVIEW

- A. Engineer will review construction progress schedules, and submittal schedules. Engineer will review product lists, shop drawings, product data, and samples and return within 15 working days of receipt.
- B. Do not make "Mass" submittals (6 or more submittals) to Engineer at one time. If Mass submittals are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review Mass submittals based upon priority determined by Engineer after consultation with Owner and Contractor.
- C. Informational submittals and other similar data are for Engineer's information and do not require Engineer's responsive action.
- D. Engineer's review of submittals is for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. Engineer's review is not conducted for purpose of determining accuracy and completeness of items such as dimensions and quantities, which remain responsibility of Contractor.
- E. Engineer's review and approval of submittals does not relieve Contractor of responsibility for deviations from Contract Document requirements, unless Engineer is informed in writing of deviations and approval is received in writing from Engineer for such deviation.
- F. Engineer's review and acceptance of submittals does not indicate acceptance of changes in Contract time or cost.
- G. Submittals made by Contractor which are not required by Contract Documents may be returned without action.
- H. Submittals stamped "No Exception Taken", "Approved" or similar: No corrections or resubmittal required; fabrication may proceed.
- I. Submittals stamped "Make Corrections Noted", "Approved as Noted" or similar: Comply with noted corrections and modifications; and resubmit. Fabrication may proceed. If for any reason noted corrections and modifications cannot be fully complied with, resubmit for review requesting clarification; do not proceed with fabrication.
- J. Submittals stamped "Rejected" or "Revised/Resubmit" or similar: Revise and resubmit for review; do not proceed with fabrication. Clearly indicate revisions, including corrections, to previous submittal. Disapproved submittals will not be considered valid cause for construction delay.
- K. Submittal approval does not authorize changes to Contract requirements unless accompanied by a Change Order, Engineer's Supplemental Instruction, or Construction Change Directive.
- L. Engineer will transmit 1 copy of Approved or Approved as Noted submittals to Owner.

1.09 RE-SUBMITTALS

- A. Make re-submittal under procedures specified for initial submittals; identify changes made since previous submittal.

- B.** Engineer will record time required to review re-submittals after original submittal and first re-submittal. Contractor shall reimburse Owner for charges of Engineer and Engineer's consultants for reviewing submittal more than 2 times.

1.10 DISTRIBUTION

- A.** Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear Engineer stamp of approval, to job site file, Record Documents file, subcontractors, suppliers, and other entities requiring information.
- B.** Engineer will record time required to review resubmittals after original submittal and first resubmittal. Contractor shall reimburse Owner for charges of Engineer and Engineer's Consultants for reviewing submittal more than 2 times.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION

**SECTION 01 41 13
CODES**

PART 1: GENERAL

1.01 REFERENCE SPECIFICATIONS

Whenever reference is made to the furnishing of materials or testing thereof to conform to the Standards of any technical society, organization, or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the time of advertisement for bids, even though reference has been made to an earlier standard. Such standards are made a part hereof to the extent that is indicated or intended.

The following are names and abbreviations of such groups:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ALSC	American Lumber Standards Committee
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASA	American Standards Association
ASTM	American Society for Testing Materials
AWSC	American Welding Society Code
AWWA	American Water Works Association
Fed. Spec.	Federal Specification
Navy Spec.	Navy Department Specification
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NCTCOG	North Central Texas Council of Governments Standard Specifications for Public Works Construction
U.L. Inc.	Underwriter's Laboratories, Incorporated

Where no reference is made to a code, standard, or specification, the Standard Specifications of the agencies listed above, as appropriate, shall govern.

1.02 COORDINATION OF SPECIFICATIONS AND CODES

If the Specifications and Drawings show requirements that are in excess of codes and ordinances, then the Specifications and Drawings shall be followed. Should there be any conflicts between the Specifications and Drawings and the codes and ordinances having jurisdiction, the Contractor shall report these in his bid.

END OF SECTION

**SECTION 01 42 13
ABBREVIATIONS AND ACRONYMS**

PART 1: GENERAL

1.01 ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the Specifications and Drawings. The Contractor will notify the Engineer if the meaning of any abbreviation or symbol is unclear.

Asph.	Asphalt
Assy.	Assembly
@	At
Ave.	Avenue
BL	Base Line
Bot or Btm.	Bottom
BV or B.V.	Butterfly Valve
CI	Cast Iron
CIP	Cast Iron Pipe
Cl	Clear
CL	Center Line
CMU	Concrete Masonry Unit
CO	Clean Out
Conc	Concrete
Cond.	Conduit
Corr.	Corrugated
Cu.	Cubic
CF	Cubic Feet
CV or C.V.	Check Valve
CY or C.Y.	Cubic Yard
Culv.	Culvert
DIP	Ductile Iron Pipe
Dia. or Φ	Diameter

Dr.	Driveway
Dwls	Dowels
°	Degree
EA.	Each
EF	Each Face
Elev. or EL.	Elevation
EW	Each way
EX	Existing
F	Fahrenheit
Flg.	Flange
F.L. or FL	Flow Line
Ft. or '	Foot or Feet
Gal.	Gallon
Galv.	Galvanized
Gkt.	Gasket
GPM or G.P.M.	Gallons per minute
GV or G.V.	Gate Valve
HDG	Hot-dip galvanized
Hor.	Horizontal
In. or "	Inches
ID	Inner Diameter
Lin.	Linear
L.F.	Linear Foot
Lb.	Pound
"M"	Dimension determined by equipment used
MH	Manhole
MJ	Mechanical Joint
Max.	Maximum
'	Minutes or Feet

Min.	Minimum
Mono.	Monolithic
NCTCOG	North Central Texas Council of Governments
NCTCOG Specs	Standard Specifications for Public Works Construction as published by the North Central Texas Council of Governments
No. or #	Number
OC	On Center
OCEW	On Center Each Way
OD	Outer Diameter
/	Per
%	Percent
Φ	Phase or Diameter
PE	Plain End
Prop	Proposed
PSI or psi	Pounds per square inch
PV or P.V.	Plug Valve
PVC	Polyvinylchloride
R	Radius
RCP	Reinforced Concrete Pipe
RCCP	Reinforced Concrete Cylinder Pipe
Reinf.	Reinforced
Rem.	Remove
Rep.	Replace
RSGV or R.S.G.V.	Resilient seated gate valve
R/W or ROW	Right-of-way
Sani.	Sanitary
"	Seconds or Inches
Sim.	Similar
Spa.	Spaces or Spacing

Sq.	Square
SF or S.F.	Square Feet
SY or S.Y.	Square Yard
Std.	Standard
St.	Street or Storm
Str.	Strength or Structure
SL or SL	Survey Line
SS	Stainless Steel
Sym.	Symmetrical
TDH	Total Dynamic Head
Typ.	Typical
T.C.E.Q.	Texas Commission on Environmental Quality
TxDOT	Texas Department of Transportation
VCT	Vitrified Clay Tile Pipe
Vert.	Vertical
Vol.	Volume
w/	With
WWF	Welded Wire Fabric
Yd.	Yard

END OF SECTION

SECTION 01 42 16
DEFINITIONS

PART 1: GENERAL

1.01 DEFINITIONS

Supplementing Article 1 - Definitions and Terminology of the Standard General Conditions of the Construction Contract, words, phrases or other expressions used in these Contract Documents will have the following meanings:

- A. "Contract Documents" will be synonymous with the term "Contract."
- B. "Owner" will be synonymous with the term "City" and will mean the City of Lavon
- C. "Engineer" or "Consulting Engineer" will mean the firm of Freeman-Millican, Inc., 9330 Lyndon B Johnson Fwy, Suite 1225, Dallas, TX 75243, or its duly authorized agents acting within the scope of the particular duties entrusted them in each case.
- D. "Drawings" or "plans" will mean all (a) drawings furnished by the Owner or a basis for Proposals, (b) supplementary drawings furnished by the Owner to clarify and to define in greater detail the intent of the contract drawings and specifications, (c) drawings submitted by the successful bidder with his Proposal, provided such drawings are acceptable to the Owner, (d) drawings furnished by the Owner to the Contractor during the progress of the work, and (e) engineering data and drawings submitted by the Contractor during the progress of the work, provided such drawings are acceptable to the Consulting Engineer.
- E. Whenever in these Contract Documents the words "as ordered," "as directed," "as required," "as allowed" or words or phrases of like importance are used, it will be understood that the order, direction, requirement, permission or allowance of the Owner or Consulting Engineer is intended only to the extent of judging compliance with the terms of the contract. None of these terms will imply the Owner or the Consulting Engineer has any authority or responsibility for supervision of the Contractor's forces or construction operations. Such supervision and the sole responsibility therefor are strictly reserved for the Contractor.
- F. Similarly the words "approved," "reasonable," "suitable," "acceptable," "proper," "satisfactory," or words of like effect and import are used, it will be understood that such work, materials and methods will be approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Owner or Consulting Engineer to the extent provided in "E" above.
- G. Whenever in these Contract Documents the expression "it is understood and agreed," or an expression of like import is used, such expression means the mutual understanding and agreement of the parties executing the Contract.
- H. Whenever in these Contract Documents the words "Provide", "Furnish and Install," "Install" or words of like effect and import, unless otherwise particularly specified, will mean that the Contractor is to both purchase all materials and provide all labor and equipment required to perform the work described. The Owner will not furnish any material, labor or equipment unless specifically provided for in the Contract Documents.
- I. Whenever in these Contract Documents, the word "Proposed" or words of like effect and import are used, it will be understood that the work described as being "proposed" is to be constructed as a part of this contract.

J. Whenever in these Contract Documents, the word "New" or words of like effect and import are used, it will be understood that the work described as being "new" is to be constructed as a part of this contract.

Whenever in these contract documents, the word "Future" or words of like effect and import are used, it will be understood that the work described as being "future" is not to be constructed as a part of this contract but is contemplated in the future and is referenced in these documents only for the information of the Owner and Contractor.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION

**SECTION 01 45 00
QUALITY CONTROL**

PART 1: GENERAL

1.01 TESTING LABORATORY SERVICES

- A. The testing of construction materials shall be performed by an independent testing laboratory approved by the Engineer and Owner. All samples of materials required for determining compliance will be furnished by Contractor at no cost to Owner.
- B. Testing Laboratory Services to be Paid for by Contractor
 - 1. Any tests required by the Technical Specifications as part of submittals for validation of materials, products, or equipment proposed for use in the project.
 - 2. Any tests which fail to meet specifications.
- C. The Owner reserves the right to initiate any other tests of materials and workmanship.
- D. When the Engineer or the Owner's representative does initiate any test which reveals a condition that does not meet the requirements of the specifications, then the Contractor shall reimburse the Owner for the cost of such failing tests, as well as for subsequent tests made at the direction of the Engineer until it is found that the deficiency so revealed has been corrected. Nothing in this paragraph shall be construed to relieve the Contractor of the cost of testing any material in which technical specifications require the Contractor to pay such costs.

1.02 ENGINEERING OBSERVATION SERVICES

- A. The Owner may appoint (either directly or through the Engineer) such observers as the Owner deems proper to review the material furnished and the work performed for compliance with the drawings and specifications. The Contractor shall furnish all reasonable assistance required by the Engineer, or observers, for the proper observation of the work. If the Contractor wants to object to any interpretation of the contract by an observer, the Contractor can make written appeal to the Engineer for a decision on the matter.
- B. Observers shall have the authority to reject work that is unsatisfactory, faulty, or defective or does not conform to the requirements of the drawings and specifications. Observation shall not relieve the Contractor from any obligation to construct the work strictly in accordance with the drawings and specifications. Work not so constructed shall be removed and replaced by the Contractor at his own expense.

1.03 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

- A. All work that has been rejected or condemned shall be repaired or if it cannot be repaired satisfactorily, it shall be removed and replaced at the Contractor's expense. Defective materials shall be immediately removed from the site of the work. Work done without line and grade having been given, work done beyond the lines or not in conformity with the grades shown on the plans or as given (save as herein provided), work done without proper inspection, or any extra or unclassified work done without written authority and prior agreement in writing as to prices, may be ordered removed at the Contractor's expense. Upon failure to repair satisfactorily or to remove and replace (if so directed) rejected, unauthorized or condemned work or materials immediately after receiving notice from the Engineer, the Engineer will (after giving written notice to the Contractor) have the authority to cause defective work to be remedied, removed, replaced, or to cause unauthorized work to be removed and to deduct the cost thereof from any monies due (or to become due) to the Contractor.

- B. In the event defective work or unauthorized work cannot be satisfactorily removed from the work as determined by the Owner and the Engineer, the Owner may deduct from any monies due (or to become due) the Contractor such amount as would be required, as determined by the Engineer, to remove and replace such defective work or unauthorized work even though such work may remain in place.
- C. Neither the observation by the Owner or Engineer or any of their officials, employees, or agents nor any order by the Owner or Engineer for payment of money, or any payment for, or acceptance of, the whole or any part of the work by the Owner or Engineer, nor any extension of time, nor any possession taken by the Owner or its employees, shall operate as a waiver of provision of this Contract, or of any power herein reserved to the Owner, or any right to damages herein provided, nor shall waiver of any breach in this Contract be held to be a waiver of any other subsequent breach.

1.04 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to work which will not be affected adversely thereby. No portions of the work shall be constructed under conditions that would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.

END OF SECTION

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1: GENERAL

1.01 MATERIALS AND CONSTRUCTION METHODS

- A. The detailed Specifications herein are divided into several sections, covering various materials and methods of construction, and the applicable parts of each section shall apply to the Contract work.
- B. Rejected or condemned materials shall be immediately removed from the site of the work.
- C. All materials to be used in this project must be new. Do not incorporate materials which have been used for temporary purposes into the permanent construction unless written consent of the Engineer has been obtained.

1.02 ACCEPTANCE AND SUBSTITUTIONS

- A. Where materials or equipment are specified by the trade or brand name, it is not the intention of the Owner to discriminate against an equal product of another manufacturer, but rather to establish an equal basis for the evaluation of bids. Where the words "equivalent," "proper" or "equal to" is used, they shall be understood to mean that the article or process is equal, in the opinion or judgment of the Engineer, to the article or process specified by name. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "equal to" or other such expressions are not used in the Specifications, the material, manufactured article, or process specifically designated shall be used. A substitute shall be approved in writing by the Engineer, and the Engineer shall have the right to require the use of such specifically designated material, article or process.
- B. Substitutions after the award of Contract shall be made only within sixty (60) days after the notice to proceed. Furnish all required supporting data. The submittal of substitutions for review shall not be cause for time extensions.
- C. Where substitutions are offered, the substituted product shall meet the product performance as set forth in the specified manufacturer's current catalog literature, as well as meeting the details of the Contract Documents.
- D. The details on the drawings and the requirements of the Specifications are based on the first listed material or equipment. If any other than the first listed material or equipment is furnished, the Contractor shall assume responsibility for the correct function, operation, and accommodation of the substituted item. If there are misfits or changes in work required, either in this section or other sections of the Contract, or in both, bear all costs concerning all changes arising out of the use of other than the first listed item specified.

1.03 STORAGE OF MATERIALS

Materials shall be stored so as to insure the preservation of their quality and fitness for the work. When directed by the Engineer, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground and shall be placed under cover when so directed. Stored materials shall be placed and located to facilitate prompt inspections.

END OF SECTION

**SECTION 01 71 23
FIELD ENGINEERING**

PART 1: GENERAL

1.01 LINE AND GRADES

- A. Dimensions for lines and elevations for grades of structures, appurtenances, and utilities are indicated on Drawings, together with other pertinent information required for laying out work.
- B. Basic horizontal and vertical control points will be established or designated by the Engineer. These points shall be used as datum for work under this contract. All additional survey, layout, and measurement work shall be performed by the Contractor as a part of the work under this contract. If conditions vary from those indicated, notify Engineer immediately, who will make minor adjustments required.
- C. The Contractor shall provide an experienced instrument man, competent assistants, and such instruments, tools, stakes, and other materials as required to complete the survey, layout, and measurement work. In addition, the Contractor shall furnish, without charge, competent men from his force and such tools, stakes and other materials as the Engineer may require in establishing or designating control points, or in checking survey, layout, and measurement work performed by the Contractor.
- D. The Contractor shall keep the Engineer informed, a reasonable time in advance, of the times and places at which he wishes to do work, so that horizontal and vertical control points may be established and any checking deemed necessary by the Engineer may be done with minimum inconvenience to the Engineer and minimum delay to the Contractor.
- E. Engineer may perform checks to verify accuracy of Contractor's layout work and that completed Work complies with Contract Documents.
- F. Any existing survey points or other control markers destroyed without proper authorization will be replaced by owner of the survey points or control markers at the Contractor's expense.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Provide additional survey and layout required.
- B. Locate and protect reference points prior to starting site preparation.
- C. Check and establish exact location of existing facilities prior to construction
- D. In event of discrepancy in data or staking provided by Engineer, request clarification before proceeding with work.
- E. Preserve and leave undisturbed control staking until Engineer has completed checks it deems necessary.
- F. Re-establish reference points resulting from destruction by Contractor's operations.
- G. Maintain accurate log of survey work as it progresses as a Record Document.
- H. On request of Engineer, submit documentation.
- I. Provide competent employee(s), tools, stakes, and other equipment and materials as Engineer may require to:
 - 1. Establish control points, lines, and easement boundaries.

2. Check layout, survey, and measurement work performed by others.
 3. Measure quantities for payment purposes.
- J. Cooperate with Engineer so that checking and measuring may be accomplished with least interference to Contractor's operations.
- K. Any work done without being properly located may be ordered removed and replaced at the Contractor's expense.

1.03 PRESERVATION OF MONUMENTS AND STAKES

The Contractor shall carefully preserve all monuments, bench marks, property markers, reference points, and stakes. In case of his destruction thereof, the Contractor will be charged with the expense of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent monuments or bench marks which must be removed or disturbed shall be protected until properly referenced for relocation. The Contractor shall furnish materials and assistance for the proper replacement of such monuments or bench marks.

END OF SECTION

**SECTION 01 74 00
CLEANING AND WASTE MANAGEMENT**

PART 1: GENERAL

1.01 DESCRIPTION

- A. Throughout the construction period, maintain the project in a standard of cleanliness as described in this Section.
- B. Beyond the standards described in this Section, comply with requirements for cleaning up as described in various other Sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. Conduct daily inspection to verify that requirements of cleanliness are being met.
- B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2: PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

Provide personnel, equipment and materials needed to maintain the specified standard of cleanliness.

2.02 COMPATIBILITY

Use only cleaning materials and equipment that are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the Engineer.

PART 3: EXECUTION

3.01 PROGRESS CLEANING

A. General

- 1. Retain stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic and providing protection of materials.
- 2. Do not allow the accumulation of scrap, debris and waste material.
- 3. Provide adequate storage for items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site

- 1. Daily inspect the site and pick up scrap, debris and waste material. Remove such items to the place designated for their storage.
- 2. Weekly inspect arrangements of materials stored on the site; restack, tidy or otherwise service all arrangements to meet the requirements of paragraph above.
- 3. Maintain the site in a neat and orderly condition to the approval of the Engineer.

C. Graffiti

Promptly remove all evidence of graffiti.

3.02 FINAL CLEANING

- A. Before completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris and waste. Conduct final progress cleaning as described in Article above.
- B. Schedule final cleaning as approved by the Engineer to enable the Owner to accept a completely clean project.

END OF SECTION

**SECTION 01 74 19
WASTE MATERIAL DISPOSAL**

PART 1: GENERAL

1.01 DESCRIPTION

- A. Waste material disposal consists of disposal of trees, stumps, logs, brush, roots, grass, vegetation, humus, rubbish, asphalt, concrete debris and other objectionable matter. Also included is the disposal of excess excavated materials from trench excavations and accessories. CONTRACTOR is responsible for selection of safe and legal waste material disposal area and the removal and disposal of the above described materials. This section does not include the removal of contaminated waste, as identified by the ENGINEER.

PART 2: PRODUCT

2.01 SPECIFIC PRODUCTS ARE NOT REQUIRED.

- A. Use equipment and materials necessary to properly complete disposal of waste materials. Obtain approval from the ENGINEER for the equipment and materials to be used before beginning disposal of waste materials. The CONTRACTOR shall notify the ENGINEER of the proposed disposal sites.

PART 3: EXECUTION

3.01 DISPOSAL AREA

- A. Waste material shall be removed from the work site in a timely manner as instructed by the owner or ENGINEER and disposed of in a manner not to damage the City or other persons. All excess waste material will be removed from the site by the CONTRACTOR the same day it is excavated.

3.02 PERMITS

- A. Disposal of Spoil/Fill Material: Prior to the disposing of any waste material, the CONTRACTOR shall advise the ENGINEER, of the location of all sites where the CONTRACTOR intends to dispose of such material.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1: GENERAL

1.01 CLEANING

- A. Upon completion of the work, the Contractor shall remove from the site all materials, tools, and equipment belonging to him and leave the site with an appearance acceptable to the Engineer.

1.02 FINAL OBSERVATION

- A. When the work has been substantially completed, and at a time mutually agreeable to the Owner, Consulting Engineer, and Contractor, the Consulting Engineer will make a final observation of the work and report to the Owner his findings as to the acceptability and completeness of the work.

1.03 PROJECT RECORD DOCUMENTS

Before final payment on the project is made, the Contractor will be furnished with one set of Plans to record project data. Project data shall include but not be limited to the following:

- A. Changes in construction not covered by a change order or field order including:
 - 1. Changes in dimensions.
 - 2. Changes in material.
 - 3. Any variation in construction details.
 - 4. Any critical dimensions not shown on the original Plans to include:
 - a. Location of miscellaneous piping and utilities, including all utilities uncovered or otherwise located during the construction of the project
- B. Mark both sets of prints and submit to Engineer for approval.

1.04 FINAL PAYMENT

- A. Before final payment will be made, the Contractor shall furnish the Owner a consent of surety issued by the regional or national office of the surety (not the local agent) and an affidavit or other satisfactory evidence that all indebtedness connected with the work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for and used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may respectively be due have consented to such final payment.
- B. Acceptance by the Contractor of the final payment shall be a release to the Owner, Engineer and every officer and agent thereof, from all claims and liability hereunder for anything done or furnished for, relating to the work, or for any act or neglect of the Owner or of any person relating to or affecting the work.

1.05 GUARANTEE

A. Scope and Period of Guarantee

1. The Contractor shall guarantee the materials and workmanship furnished under this Contract to be as specified and to be free from defects for a period of two (2) years after the date of acceptance of the improvements.
2. The guarantee shall cover all work, equipment, and materials that are a part of this project, whether or not a warranty is specified in the specification section describing that particular aspect of the work. Where a warranty of duration greater than the guarantee period is specified for a particular aspect of the work that warranty shall govern.
3. The cost of all materials, parts, labor, transportation, supervision, tools, and supplies required for replacement of parts or correction of defects shall be paid by the Contractor or the Surety. The guarantee shall be extended to cover all replacements and corrections furnished under the guarantee. If the date of completion of a replacement or correction is less than one year from the end of the guarantee period, the guarantee for each such replacement or correction shall be one year after completion of the replacement or correction.

B. Notification and Service under the Guarantee

1. Upon notification, the Contractor shall promptly make all adjustments, repairs, or replacements which, in the opinion of the Consulting Engineer or Owner, arose out of defects and became necessary during the guarantee period.
2. If within (10) ten days after the Owner has notified the Contractor of the defect, failure, or abnormality in the work, the Contractor has not started to make the necessary repairs or adjustments, the Owner is hereby authorized to make the repairs or adjustments, or to order the work done by a third party, and the cost of the work shall be paid by the Contractor or the Surety.
3. In the event of an emergency where, in the judgment of the Owner, delay would cause serious loss or damage, repairs or adjustments may be made by the Owner, or a third party chosen by the Owner, without advance notice to the Contractor, and the cost of the work shall be paid by the Contractor or the Surety.

END OF SECTION

**SECTION 01 78 36
WARRANTIES**

PART 1: GENERAL

1.01 SCOPE

- A. This Section covers the requirements for Warranties and Bonds required for items beyond the standard one (1) year CONTRACTOR Warranty for items installed for this project. CONTRACTOR shall maintain and keep in good repair the improvements covered by this Section. CONTRACTOR shall indemnify the OWNER against performance of the system for a period of **two (2) years** from the date of final acceptance of the Work by City Council.
- B. The CONTRACTOR shall, at his own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals or shall perform such work or reconstruction as may be made necessary by structural or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the Work performed by him.
- C. The CONTRACTOR shall, at his own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals or shall perform such work or reconstruction as may be made necessary for failure of system to meet the performance requirements as outlined in the technical specifications.
- D. In the event the CONTRACTOR fails to proceed to remedy the defects of which he has been notified within fifteen (15) days of the date of such notice, the OWNER reserves the right to cause the required materials to be procured and the work to be done, as described in the Specifications, and to hold the CONTRACTOR and the sureties on his bond liable for the cost and expense thereof.
- E. All warranties, bonds, insurance, etc. shall provide for thirty (30) day advance notice to the OWNER prior to cancellation or renewal date. No payment will be made to the CONTRACTOR for any work without insurance and bonds being in effect.

1.02 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in triplicate by responsible Subcontractor's, suppliers and manufacturers, within ten (10) days after completion of the applicable item or work. Except for items put into use with OWNER's permission, leave date of beginning of time of warranty until the date of Final Approval is determined. Verify that documents are in proper form and contain full information. Co-execute submittals when required. Retain warranties and bonds until time specified for submittal.

1.03 TIME OF SUBMITTALS

- A. Make submittal within ten (10) days after Date of Final Acceptance, prior to final Application for Payment.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION

**SECTION 03 11 00
CONCRETE FORMING**

PART 1: GENERAL

1.01 DESCRIPTION

A. Scope

This section describes the design, construction, erection and handling of concrete forms for cast-in-place concrete.

B. Related Work Specified Elsewhere

1. Section 03 20 00 - Concrete Reinforcing
2. Section 03 30 00 - Cast-in-Place Concrete

1.02 QUALITY ASSURANCE

A. Design Criteria

1. The design of concrete form work is solely the responsibility of the Contractor.
2. Conform to ACI 347 - Recommended Practice for Concrete Form Work with regard to design loads, lateral pressures, wind loads and design stresses.

B. Allowable Tolerances

1. The maximum deflection of form work for surfaces exposed to view is 1/240 of the span between supports. Camber form work where necessary to compensate for anticipated deflections in form work due to loads imposed by fresh concrete and construction loads.
2. The maximum allowable deviation from a true plane is 1/8 inch in six (6') feet for all exposed surfaces.
3. The maximum deviation from a true circle for circular structures is plus or minus 1/4 inch when measured at the edge of each form.
4. The maximum allowable deviation from any plan dimension is plus or minus 1/4 inch.

C. Reference Standards

1. Recommended Practice for Concrete Formwork (ACI 347).
2. Building Code Requirements for Reinforced Concrete Structures (ACI 318).

1.03 SUBMITTALS

- A. Submit a description of the forming system to be used including form type and description of form ties, to the Engineer for review.
- B. Submit detailed plans of the forming layout for any structure if directed by the Engineer. The Engineer's concurrence shall in no way relieve the Contractor of his responsibility for obtaining satisfactory results or his responsibility for damages or injury resulting from the use of such forming plans.

1.04 HANDLING AND STORAGE

- A. Handle all forming materials with care while erecting, removing and storing.
- B. When forms are not in use, stack neatly to prevent damage from moisture or other environmental conditions.

PART 2: PRODUCTS

2.01 MATERIALS

Material	Specification
Prefabricated Forms	Steel framed plywood, steel framed fiberboard or steel.
Plywood	Product Standard PS-1, waterproof, resin-bonded, exterior fir; face adjacent to concrete Grade B or better.
Fiberboard	Fed. Spec. LLL-B-810 Type IX, tempered waterproof, concrete form hardboard.
Lumber	Straight, uniform, free from holes, dents or other surface defects.
Chamfer Strips	Clear white pine or commercially manufactured chamfer strips; surface against concrete planed smooth; 45 degrees chamfer strip with minimum cross-section dimension of 3/4".
Form Ties	Steel, removable end, permanently embedded type. Furnish spreader cones such that no metal from the tie remains closer than one (1) inch from the formed surface after the forms are removed.

2.02 FABRICATION AND MANUFACTURE

- A. All forms shall be fabricated or manufactured to be sufficiently tight to prevent leakage of concrete and to be easily aligned to prevent offsets. Warped or bent forms or frames will not be accepted.
- B. Construct forms so they may be easily removed without damaging concrete surfaces.
- C. Provide positive means of adjustment of shores and struts by use of wedges or jacks.

PART 3: EXECUTION

3.01 INSPECTION

- A. Inspect all forms for warps, bent frames, bent plates, damaged plywood or fiberboard and remove damaged forms from the job site.
- B. Examine surfaces to which forms may be connected or may abut before beginning erection of forms. Correct any defects and deviations in these surfaces before erecting forms.

3.02 PREPARATION

A. Field measurements

Lay out all necessary dimensions required to establish proper placement of forms. Use string lines, chalk lines or other suitable aids to establish lines and grades for form setters. Check all dimensions of erected form work before placing concrete.

B. Clean forms before beginning erection.

C. Lubricate, with an approved commercially prepared form lubricant, all portions of the form which will be in direct contact with concrete.

3.03 ERECTION

A. Erect all forms in such a manner as to be true to lines, dimensions and elevations shown on the drawings; to be rigidly braced and unyielding; and to be completely mortar tight.

B. Install walers, studs, internal ties and other form supports, adequately spaced so proper working stresses are not exceeded.

C. Provide temporary openings in wall and column forms to facilitate cleaning, inspection and placing of concrete.

D. Forms for Concrete Normally Exposed to View

1. Lay forms out in a regular and uniform pattern with the long dimension of the panels vertical with all joints aligned. Flat segmental forms may be used for forming curved surfaces 25 feet in diameter or larger.

2. Do not use any forms which have offsets, ridges or concave or convex surfaces.

3. Use new or like new forms for all surfaces normally exposed to view and to a point one foot below finished grade. Steel forms shall be square and true and have no dents or deviations from a true plane exceeding one-sixteenth of an inch.

4. Wherever the top of a wall is to be exposed to view, bring the top of at least one side of the forms to proper line and grade so the top of the wall can be finished with a screed or template.

E. Install chamfer strips for all exposed corners, except as indicated otherwise on the drawings.

3.04 CONSTRUCTION JOINTS

A. Install construction joint forms to conform to the details shown in the plans.

B. Locate construction joints as shown on the drawings or as specified below. Do not use construction joints at other locations without the concurrence of the Engineer.

1. Columns and Walls: Locate construction joints at the underside of beams, girders, haunches, drop panels and column capitals, and at floor levels.

2. Beams and Girders: Locate construction joints at mid span.

C. Locate construction joints perpendicular to the planes of their surfaces and parallel to the main reinforcement.

3.05 FIELD QUALITY CONTROL

- A. Before placing concrete, check all shores, struts, jacks, connections and ties for tightness and rigidity.
- B. Check all forms for alignment and for conformance to plan dimensions.

3.06 REMOVAL OF FORMS

- A. Forms for columns, walls, sides of beams and any other concrete member not supporting the weight of the concrete may be removed when concrete strength has reached 1500 psi. Concrete strength may be determined from compression tests on field made cylinders or from strength vs. time curves prepared by a testing laboratory from compression tests of the design concrete mix.
- B. Form work for beam soffits, structural slabs and other parts that support the weight of concrete may be removed only after the compression tests of field made cylinders indicate the concrete has reached the specified 28 day strength.

END OF SECTION

**SECTION 03 20 00
CONCRETE REINFORCING**

PART 1: GENERAL

1.01 DESCRIPTION

- A. Scope: This section describes the fabrication and installation of reinforcing steel for cast-in-place concrete.
- B. Related Work Specified Elsewhere
 - 1. Section 03 11 00 - Concrete Forming
 - 2. Section 03 30 00 - Cast-in-Place Concrete

1.02 QUALITY ASSURANCE

A. Allowable Tolerances

1. Fabrication Tolerances

- a. Sheared length: plus or minus one (1") inch.
- b. Depth of truss bars: plus or minus 0 inch - ½".
- c. Stirrups, ties and spirals: ½".
- d. Other bends: plus or minus one (1") inch.

2. Placing Tolerances

- a. Concrete cover to formed surface: plus or minus ¼".
- b. Minimum spacing between bars: ¼".
- c. Top bars in slabs or beams.
 - (1) Members eight (8") inches deep or less: ¼".
 - (2) Members more than eight (8") inches, but not over two (2') feet deep: plus or minus ½".
 - (3) Members more than two (2') feet deep: plus or minus one (1") inch.
- d. Cross of member: spaced evenly with in two (2") inches.
- e. Lengthwise of member: plus or minus two (2") inches.

B. Reference Standards

- 1. Specifications for Deformed Billet Steel Bars for Concrete Reinforcement (ASTM A615).
- 2. Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement (ASTM A82).
- 3. Specifications for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM A185).
- 4. Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315).

5. Building Code Requirements for Reinforced Concrete Structures (ACI 318).
6. Recommended Practice for Placing Reinforcing Bars (CRSI 63).
7. Recommended Practice for Placing Bar Supports, Specifications, Nomenclatures (CRSI 65).

1.03 SUBMITTALS

- A. Submit shop drawings and schedules of concrete reinforcement to the Engineer for review. Indicate bar number, size, length, configuration, spacing, quantity, location, and grade of steel of all reinforcing bars.
- B. Submit manufacturer's technical literature describing each type of bar support to be used. Indicate typical locations where each type of bar support is to be used.
- C. Review of shop drawings by the Engineer will not relieve the Contractor of the responsibility for deviations from original drawings nor from correcting deficiencies and errors on the shop drawings which have been returned to him.

1.04 STORAGE OF MATERIALS

- A. Stack reinforcing materials in a neat and orderly manner, and in a location to limit the possibility of damage by construction equipment, and to permit easy access.
- B. Use care in loading, unloading, handling and storage of materials to prevent damage to bar marking labels.

PART 2: PRODUCTS

2.01 MATERIALS

Material	Specification
Bars	ASTM A615, Grade 60
Stirrups and Ties	ASTM A615, Grade 40
Column Spirals	ASTM A82, cold drawn wire
Welded Wire Fabric	ASTM A185
Dowel Bar Splicer	C20 Rebar Flange Coupler by Williams Form Engineering Corp. or approved equal.
Bar Supports	Slabs on Polyethylene Film, Sand or Soil: Fabricated from galvanized steel wire with integral flat plate pad (3") min. diameter or with interlocking plastic support plate of the same diameter.
	Slabs on concrete sealer slabs: Fabricated from galvanized steel wire.
	Against formed surfaces: CRSI Class B or E, fabricated from galvanized wire with plastic coated leg tips or stainless wire.
Capsule Anchors	Molly "Parabond" or equal epoxy glass capsule chemical anchors.

2.02 FABRICATION

- A. All bars shall be bent cold, unless otherwise permitted by the Engineer.
- B. Bend all bars to the tolerances specified herein.
- C. Mark all bars with waterproof tags corresponding to the bar list. Bundle all similar bars together.

PART 3: EXECUTION

3.01 INSPECTION

- A. Inspect subgrade and/or forms for proper location, grade and alignment before placing reinforcement.
- B. Inspect reinforcing for damage. Remove all mud, oil or other nonmetallic coatings that would adversely affect bonding capacity.

3.02 PLACEMENT

- A. Accurately position reinforcements on supports, spacers, hangers or other approved supports, and secure in place with ties or clips. Supporting reinforcement directly on concrete, brick or rocks in lieu of specified supports is prohibited.
- B. Use templates to insure proper placement of column dowels.
- C. Splices not shown on the plans may be used provided such splices meet the requirements of ACI 318. Welding or tack welding of reinforcement is prohibited.
- D. Do not bend reinforcement which is partially embedded in hardened concrete, unless approved by Engineer.
- E. Lap welded wire fabric a distance equal to the wire spacing, plus two (2") inches.
- F. Place reinforcement to be held in position such that the concrete cover between the outside of any bar and the concrete form conforms to the following.
 - 1. Slabs, walls and joints not exposed to weather or in contact with earth or water: one (1") inch.
 - 2. Concrete exposed to earth or water:
 - a. #5 bars and smaller: 1½ inches.
 - b. #6 bars and larger: two (2") inches.
 - 3. Concrete cast against earth: three (3") inches.
 - 4. Beams, girders and columns: 1½ inches.
- G. Place capsule anchors and dowel bar splicers according to manufacturer's specifications.

END OF SECTION

**SECTION 03 30 00
CAST-IN-PLACE CONCRETE**

PART 1: GENERAL

1.01 DESCRIPTION

- A. This section covers the design, forming, mixing, placing and curing of cast-in-place concrete.
- B. Related Work Specified Elsewhere
 - 1. Section 03 11 00 - Concrete Forming
 - 2. Section 03 20 00 - Concrete Reinforcing

1.02 QUALITY ASSURANCE

- A. Design Criteria
 - 1. Form Work
 - a. The design of concrete form work is solely the responsibility of the Contractor.
 - b. Conform to ACI 347 - Recommended Practice for Concrete Form Work regarding design loads, lateral pressures, wind loads and design stresses.
 - 2. Concrete
 - a. Strength:
 - (1) Concrete foundations, vaults, and equipment pads shall be designed to yield a compressive strength of 4000 psi at 28 days.
 - (2) Concrete paving shall be designed to yield a compressive strength of 3600 psi at 28 days. See Section 32 13 13.
 - b. Slump - The following limits of slump shall be used to control the design and placing of concrete:

Type of Construction	Slump in Inches	
	Maximum	Minimum
Foundations and slabs on grade	3	1
Beams, walls, and slabs above grade	5	2

- c. Minimum Cement Content - The minimum cement content expressed in sacks per cubic yard of concrete shall be not less than the following:

Design Strength	Minimum Cement Content
2000 psi	4 sacks (376 lb.)
2500 psi	4.5 sacks (423 lb.)
3000 psi	5 sacks (470 lb.)
3500 psi	5.5 sacks (517 lb.)
3600 & 4000 psi	6 sacks (564 lb.)

The minimum cement content for concrete used on this project shall be six sacks per cubic yard.

- d. Water-Cement Ratio – The maximum water-cement ratio shall be six (6) US gallons per ninety-four (94) pound sack of cement at saturated surface dry condition of aggregates. Correct for free water or absorption of aggregates.
- e. Admixtures
- (1) A water-reducing admixture shall be used in all structural concrete. Substitute a set-retarding water-reducing admixture for the water-reducing admixture when the concrete and air temperature conditions specified under “Hot Weather Concreting” exist. The materials shall be used in quantities recommended by the manufacturer.
 - (2) An air entraining admixture shall be used for all exposed exterior concrete. The total volumetric air content of concrete after placement shall be 4%, plus or minus 1%.
 - (3) No admixtures containing calcium chloride may be used.
- f. Fly Ash: Fly ash is not permissible for use in any structural concrete. If allowed by local regulations, fly ash may be used for concrete paving or sidewalks. Fly ash may be substituted for cement at a 1.25 parts fly ash to 1.0 parts cement substitution rate, up to a maximum 20% of total cement content.

B. Submittals

1. Concrete Mix Design

- a. Furnish mix designs for each strength design to be used. Submit separate mix designs for interior concrete and exterior concrete exposed to weather to reflect differing requirements for air entrainment. Submit mix designs which have been used on other projects within the last two years which meet these specifications. If such previously used designs meeting these specifications are not available, provide mix designs prepared, tested, and stamped by a qualified engineer registered in Texas.
- b. A mix design shall indicate: type of structure for which it is intended, strength design (number of sacks and compressive strength), intended range of placement slump, proportions of all ingredients by volume and weight per cubic yard of mix, water-to-cement ratio, air content, and admixtures to be used. State conditions under which various admixtures will be used.

- c. Submit 28-day results of at least 30 tests for each mix design. Indicate mix name/number, test number, date of pour, ambient temperature at time of pour, placement slump, percent of air, and compressive strength.
 - d. Provide sieve analysis for both coarse and fine aggregates to be used.
 - e. Provide manufacturer's technical literature for each admixture to be used.
2. Rebar Shop Drawings: Submit shop drawings and schedules indicating dimensions, diameters, bends, splices, locations, spacing, and grade of steel of all reinforcing bars. Indicate type and size of bar supports to be used.
 3. Provide manufacturer's technical literature for each type of bar support to be used.
 4. Curing Products - Submit manufacturer's technical literature for all curing compounds.

C. Allowable Tolerances

1. Form Work

- a. The maximum deflection of form work for surfaces exposed to view is 1/240 of the span between supports. Camber form work where necessary to compensate for anticipated deflections in form work due to loads imposed by fresh concrete and construction loads.
- b. The maximum allowable deviation from a true plane is 1/8 inch in six (6') feet for all exposed surfaces.
- c. The maximum deviation from a true circle for circular structures is plus or minus 1/4 inch when measured at the edge of each form.
- d. The maximum allowable deviation from any plan dimension is plus or minus 1/4 inch.

2. Reinforcing

a. Fabrication Tolerances

- (1) Sheared length: plus or minus one (1") inch.
- (2) Depth of truss bars: plus or minus 0 inch - 1/2".
- (3) Stirrups, ties and spirals: 1/2".
- (4) Other bends: plus or minus one (1") inch.

b. Placing Tolerances

- (1) Concrete cover to formed surface: plus or minus 1/4".
- (2) Minimum spacing between bars: 1/4".
- (3) Top bars in slabs or beams:
 - (a) Members eight (8") inches deep or less: 1/4".
 - (b) Members more than eight (8") inches, but not over, two (2') feet deep: plus or minus 1/2".
 - (c) Members more than two (2') feet deep: plus or minus one (1") inch.

(4) Cross of member: spaced evenly within two (2") inches.

(5) Lengthwise of member: plus or minus two (2") inches.

D. Reference Standards

1. Recommended Practice for Concrete Formwork (ACI 347).
2. Specifications for Deformed Billet Steel Bars for Concrete Reinforcement (ASTM A615).
3. Specifications for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM A185).
4. Building Code Requirements for Reinforced Concrete Structures (ACI 318).

E. Source Quality Control - Ready-Mixed Concrete

1. Conform to the requirements of ASTM C 94.
2. The truck mixer, before being used, shall be approved by the Engineer as to type and condition. Mixers with worn or damaged blades will not be approved. Mixers shall be provided with a closed watertight drum, suitably mounted and fitted with adequate blades capable of combining aggregates, cement and water into a thoroughly mixed and uniform mass of concrete and to discharge the concrete without segregation.
3. The truck mixer shall be equipped with a revolution counter. Do not place concrete until the concrete has been mixed for 100 revolutions.
4. Submit a delivery ticket to the Engineer's field representative at the time of delivery for each load of concrete. Include the following information on the ticket:
 - a. Quantity delivered.
 - b. Amount of each material in the batch.
 - c. Time at which the mixer was charged.

1.03 JOB CONDITIONS

A. Cold Weather Concreting

1. Except upon written authorization by the Engineer, do not place concrete when the temperature is below 40° F and falling.
2. Concrete may be placed when the temperature is 35° F and rising.
3. No mixed concrete will be accepted which has a temperature of 50° F or less when delivered.
4. Protect all concrete from freezing temperatures for five days after placement. Use protective coverings, enclosures and/or heat to prevent concrete from freezing. Methods used shall conform to ACI 306 and shall maintain a 50° F air temperature around the concrete.
5. The Contractor shall be responsible for the quality and strength of concrete under cold weather conditions and all concrete damaged by freezing shall be removed and replaced by the Contractor at his own expense.

B. Hot Weather Concreting

1. Conform to ACI 605, "Recommended Practice for Hot Weather Concreting."

2. No mixed concrete will be accepted which has a temperature of 90° F or more when delivered.
3. Add set-retarding water-reducing admixture when the concrete temperature exceeds 75° F or when the air temperature exceeds 85° F.
4. The Contractor shall be responsible for the quality and strength of concrete under hot weather conditions and all concrete damaged shall be removed and replaced by the Contractor at his own expense.

C. Illumination

Do not place concrete before sunrise or later than will normally permit completion of all finishing operations during sufficient natural light.

D. Protection

1. Do not place concrete during rain, sleet or snow or when such precipitation is imminent.
2. Where precipitation increases the water content of un-set concrete, or damages the surface of concrete, the Contractor shall remove and replace the concrete at no additional cost to the Owner.

PART 2: PRODUCTS

2.01 MATERIALS

Prefabricated Forms	Steel framed plywood, Steel framed fiberboard or steel.
Plywood	Product Standard PS-1, waterproof, resin bonded, exterior fir; face adjacent to concrete, Grade B or better.
Fiberboard	Fed. Spec. LLL-B-810 Type IX, tempered waterproof, concrete form hardboard.
Lumber	Straight, uniform, free from holes, dents or other surface defects.
Chamfer Strips	Clear white pine or commercially manufactured chamfer strips; surface against concrete planed smooth; 45 degree chamfer strip with a minimum cross section dimension of ¾".
Form Ties	Steel, removable end, permanently embedded type. Furnish spreader cones such that no metal from the tie remains closer than one (1) inch from the formed surface after the forms are removed.
Reinforcing Bars	ASTM A615, Grade 60
Stirrups and Ties	ASTM A615, Grade 40
Welded Wire Fabric	ASTM A185

Bar Supports	<p><u>Slabs on Sand, Soil or Polyethylene Film:</u></p> <p>Fabricated from galvanized steel wire with plastic coated leg tips or 3" min. diameter interlocking plastic support plate.</p> <p><u>Slabs on concrete sealer slabs:</u></p> <p>Fabricated from galvanized steel wire.</p> <p><u>Against formed surfaces:</u></p> <p>CRSI Class B or E, fabricated from galvanized wire with plastic coated leg tips or stainless wire.</p>
Cement	ASTM C150, Type I, II, or III
Fine Aggregates	ASTM C33
Coarse Aggregates	ASTM C33
Water	Clean and free from deleterious substances
Set Retarding Water-Reducing Admixture	ASTM C494, Type D; Grace "Daratard 17," Master Builders, "MB-HC" or equal
Water-Reducing Admixture	ASTM C494, Type A; Grace "WRDA with HYCOL" or equal
Air Entraining Admixture	ASTM C260, Grace "Darex AEA," " Master Builders "MB-V R" or equal
Exterior Curing Compound	ASTM C309, BASF Sonneborn "Kure-N-Seal" or equal
Interior Curing Compound	BASF Sonneborn "Sonosil" or equal
Polyethylene Film	8 mil thickness

2.02 AGGREGATE GRADATION

A. Fine Aggregate

Sieve	Percent Passing
3/8"	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10

1. Fine aggregate shall not have more than 40% retained between any two consecutive sieves of those listed above, and its fineness modulus shall not be less than 2.3 nor more than 3.1.
2. Certified sieve analysis of the proposed fine aggregate shall be submitted to the Engineer for approval before use.

B. Coarse Aggregate for Pavements (1-1/2" nominal):

Sieve	Percent Passing
2"	100
1½"	95-100
¾"	35-70
⅜"	10-30
No. 4	0-5
No. 200	Less than 1

C. Coarse Aggregate for Structures (1" nominal):

Sieve	Percent Passing
1 ½"	100
1"	95-100
½"	25-60
No. 4	0-10
No. 8	0-5

Other nominal aggregate sizes may be used with written permission of the Engineer. All aggregate gradations shall conform to ASTM C-33.

2.03 MIXING

- A. All ready-mixed concrete shall be mixed as specified in paragraph 1.02, E of this specification.
- B. Job-mixed concrete may only be used with special permission of the Engineer. The batch mixer used shall conform to the Mixer Manufacturers Bureau of the Associated General Contractors requirements and ACI 614.

PART 3: EXECUTION

3.01 INSPECTION

- A. Inspect subgrade and/or forms for proper location, grade and alignment before placing reinforcement.
- B. Inspect reinforcing for damage. Remove all mud, oil or other nonmetallic coatings that would adversely affect bonding capacity.
- C. Before placement of concrete, inspect all forms for alignment and rigidity. Tighten all form supports and make corrections to alignment as is required. Inspect all reinforcement for placement rigidity.
- D. Do not begin placing concrete until all forms and reinforcement have been inspected by the Engineer.

3.02 PREPARATION

A. Field measurements

Lay out all necessary dimensions required to establish proper placement of forms. Use string lines, chalk lines or other suitable aids to establish lines and grades for form setters. Check all dimensions of erected form work before placing concrete.

B. Clean forms before beginning erection.

C. Install walers, studs, internal ties and other form supports, adequately spaced so proper working stresses are not exceeded.

D. Lubricate, with an approved commercially prepared form lubricant, all portions of the form that will be in direct contact with concrete.

E. Install chamfer strips for all exposed corners, except as otherwise indicated on the drawings.

F. Clean all dirt, mud, water and debris from the forms and any space to be occupied by concrete. All surfaces encrusted with dried concrete from previous placement operations shall be cleaned.

G. Clean all reinforcing steel projecting from previously placed concrete before placing new concrete.

H. Sprinkle semi-porous subgrades sufficiently to eliminate absorption of water from the concrete and seal extremely porous subgrades such as gravel or sand with polyethylene film.

I. The surface of hardened concrete upon which fresh concrete is to be placed shall be rough, clean, and damp. Remove all surface mortar to expose the aggregate. Wash the hardened surface with clean water and keep it saturated before placing the fresh concrete.

J. Accurately and securely place all embedded items such as anchor bolts, water stops and expansion joints. Use templates to assist in locating all embedment whose location is critical.

K. Check all aluminum materials that will be in contact with concrete to insure the surfaces have been coated with bituminous coal tar paint. Correct any deficiencies.

L. Inspect all equipment to be used for placing and consolidating concrete for defects which might affect the reliability of such equipment during the placing operation. Provide an extra, stand-by concrete vibrator on site at all times when concrete is being placed. If the use of pump conveying has been authorized, such pumping equipment shall be furnished in duplicate to assure the concrete placing operation is uninterrupted by equipment failure.

3.03 PLACEMENT OF REINFORCEMENT

A. Accurately position reinforcements on supports, spacers, hangers or other approved supports and secured in place with ties or clips. Supporting reinforcement directly on concrete, brick or rocks instead of specified supports is prohibited.

B. Splices not shown on the plans may be used provided such splices meet the requirements of ACI 318, except where shown on the drawings. Welding or tack welding of reinforcement is prohibited.

C. Do not bend reinforcement that is partially embedded in hardened concrete, unless approved by the Engineer.

D. Lap weld wire fabric a distance equal to the wire spacing, plus two (2") inches.

- E. Place reinforcement to be held in position such that the concrete cover between the outside of any bar and the concrete surface conforms to the following schedule.
 - 1. Slabs, walls and joints not exposed to weather or in contact with earth or water - one (1") inch.
 - 2. Concrete exposed to earth or water.
 - a. #5 bars and smaller: 1½ inches.
 - b. #6 bars and larger: two (2") inches.
 - 3. Concrete cast against earth: three (3") inches.
 - 4. Beams, girders and columns: 1½ inches.

3.04 CONSTRUCTION JOINTS

- A. Install construction joint forms to conform to the details shown in the plans.
- B. Locate construction joints as shown on the drawings or as specified below. Do not use construction joints at other locations without the concurrence of the Engineer.
 - 1. Columns and Walls: Locate construction joints at the underside of beams, girders, haunches, drop panels and column capitals and at floor levels.
 - 2. Beams, Girders: Locate construction joint at mid span.
- C. Locate construction joints perpendicular to the planes of their surfaces and parallel to the main reinforcement.

3.05 PLACING CONCRETE

- A. Concrete shall not be placed unless the Engineer or Owner's representative has been given sufficient advance notice and adequate opportunity to observe the placement of forms, reinforcements and concrete.
- B. Consolidate all concrete by vibration, spading, rodding or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items and into corners of forms, eliminating all air or stone pockets that may cause honeycombing, pitting or planes of weakness. Mechanical vibrators shall have a minimum frequency of 7000 rpm and shall be operated by competent workers. Insert the vibrator into the concrete at intervals from 18 to 30 inches apart, down into the placed concrete. Vibrate the concrete sufficiently to consolidate the concrete but avoid over vibrating which may cause segregation of aggregates. The vibrator may not be used to transport the concrete within the forms. Provide a spare vibrator on the job site during all concrete placing operations. Concrete forms are not to be vibrated unless forms are designed for such purposes and approval has been obtained from the Engineer.
- C. Placement of all concrete delivered to the site shall be completed within 1½ hours, or before the drum has revolved 300 revolutions, whichever comes first, after the introduction of the mixing water to the cement and aggregates, or the introduction of the cement to the aggregates when the drum contains residual water. Concrete which has developed initial set when delivered will be rejected.

3.06 REMOVAL OF FORMS

- A. Forms for columns, walls, sides of beams and any other concrete member not supporting the weight of the concrete may be removed when concrete strength has reached 1500 psi. Concrete strength may be determined from compression tests on field made cylinders or from strength

vs. time curves prepared by a testing laboratory from compression tests of the design concrete mix.

- B. Form work for beam soffits, structural slabs and other parts that support the weight of concrete may be removed only after the compression tests of field made cylinders show the concrete has reached the specified 28-day strength.

3.07 CURING AND HARDENING

Protect all concrete against the loss of surface moisture. Immediately after finishing, while the concrete surface is damp but not wet, and cannot be marred by foot traffic, apply the specified curing compound as recommended by the manufacturer. Apply exterior curing compound to exposed surfaces of exterior concrete. Apply interior curing compound to concrete surfaces which will be exposed inside buildings and other structures.

3.08 REPAIR OF SURFACE DEFECTS

- A. Patch all repairable defective areas immediately after removing the concrete forms.
- B. Repair minor honeycomb areas and air bubble holes by removing all loose material from the area, applying an approved bonding agent, then grouting the area flush with surrounding surfaces. In exposed areas, mix the grout to be used for patching to match the color and texture of the area to be patched.
- C. Cure all patched areas for seven (7) days.
- D. All patching will be subject to the approval of the Engineer. Other proven methods of patching defects in concrete may be used subject to approval of the Engineer.

3.09 SURFACE FINISH

A. Formed Concrete Surfaces

1. After being cleaned and thoroughly dampened, fill the tie holes and air holes completely with patching mortar. Patch all tie holes within seven (7) days after removal of forms.
2. Remove fins and other surface projections from all formed surfaces except exterior surfaces that will be in contact with earthen backfill and are not specified to be dampproofed. Use a power grinder if necessary to remove projections and provide a flush surface.
3. Rubbed Finish

Apply the rubbed finish to freshly hardened concrete after all patching and repair specified above has been done. Wet all surfaces to be finished and rubbed with a carborundum brick or other abrasive until uniform color and texture are produced. No cement grout or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.

B. Unformed Surfaces

1. Float Finish
 - a. After the concrete has been properly placed and struck off use a wood float to produce an even, smooth finish.
 - b. The maximum variation in surface tolerance shall be $\frac{1}{8}$ " in ten (10') feet and within plus or minus $\frac{1}{4}$ " of plan grade. If variations greater than this exist, the Engineer may direct the

Contractor to grind the concrete to bring the surface within the requirements. Patching of low spots will not be permitted.

c. This finish is required before any of the following finishes are to be applied.

2. Trowel or Smooth Trowel Finish

- a. The finish may be applied using either hand or power trowels. Troweling may begin as soon as no cement paste clings to the blades. Continue troweling until the surface is dense, smooth and free of all minor blemishes such as trowel marks.
- b. Apply a final hand troweling to remove slight imperfections left by troweling machines and to bring the surface to a dense, smooth polished surface.

3. Brush or Light Broom Finish

After the surface has received a float finish, lightly broom the surface with a hair broom to produce a smooth but somewhat gritty texture. Broom the surface while the concrete is still plastic enough to be lightly marked or scratched by the fibers. The degree of surface roughness applied to the concrete shall be as directed by the Engineer. Apply brush marks parallel to the lines of the plan of the structure, or perpendicular to the longitudinal edges of pavement.

3.10 TESTING

A. Slump

A slump test shall be made by the Contractor, and observed by the Owner, for each truckload of concrete delivered to the job. If the slump is greater than that specified, the concrete will be rejected. The slump shall be determined according to ASTM C143.

B. Air Content

The Contractor will perform an air content test on the first batch of concrete delivered each day and from each batch of concrete from which concrete compression test cylinders are made. Air content shall be determined according to ASTM C231 Test for Air Content of Freshly Mixed Concrete by the Pressure Method or ASTM C173 Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.

C. Compression Tests

1. Prepare concrete test cylinders for each concrete pour. The number of sets of concrete test cylinders to be cast for each concrete pour shall be as follows:

No. CY Concrete Poured	Minimum No. of Sets of Cylinders
0 - 25	1
25 - 75	2
75 - 150	3
150 - 250	4
250 - 400	5
400 - 550	6

2. A "set" of test cylinders consists of six cylinders, two to be broken at seven (7) days, two broken at 28 days, and two to be stored for future use or as directed by Engineer. Compression tests will be evaluated according to ACI 214 and ACI 318.

3. Make, cure, store and deliver test cylinders to the laboratory according to ASTM C31 and test according to ASTM C39.
4. Mark or tag each set of compression test cylinders showing the date and time of day the cylinders were made, the location of the work where the concrete represented by the cylinders was placed, the delivery truck or batch number, the air content, the slump, air temperature and concrete temperature.
5. Distribute concrete compression test reports to the Owner and Engineer, the Owner and Engineer's field representatives, the Contractor, and other parties designated by the Owner.
6. The Contractor will provide and pay for testing services. The testing laboratory must be approved by the Engineer.

3.11 CONCRETE FINISH SCHEDULE

A. Rubbed Finish

1. All exterior exposed vertical surfaces to a point six (6") inches below finished grade.
2. Exposed horizontal surfaces not normally subjected to foot traffic.

B. Troweled Finish: All floors inside buildings.

C. Brush or Light Broom Finish: All exterior horizontal surfaces normally subject to foot traffic including sidewalks and vehicular pavement.

D. Corrosion Protection: Apply corrosion protection coating. See Specifications for specific requirements,

END OF SECTION

SECTION 31 11 00 SITE PREPARATION

PART 1: GENERAL

1.01 DESCRIPTION

- A. The work to be performed under this section of the specification consists of the furnishing all labor and equipment necessary to clear the site and prepare the site for construction.

1.02 QUALITY ASSURANCE

- A. Upon completion of this section, the site shall have a uniform appearance and graded evenly throughout. Grade the site to drain. Evidence of standing water on the site will be cause for rejection of the site grading and will require regrading to correct drainage problems. Construct earthen berms around all excavations to prevent surface water from entering the excavations.

1.03 JOB CONDITIONS

- A. Perform grading operation during dry weather when the moisture content of the soil is equal to or less than the optimum moisture content for controlled fills.

PART 2: PRODUCTS

2.01 MATERIALS

A. Vegetative Materials

- 1. Trees, brush, grass, weeds, and other similar materials that will interfere with subsequent earthwork or construction.

B. Debris

- 1. Trash, paper, wood, construction materials, scrap metal, rock, stones, concrete, harmful chemicals and other deleterious materials.

C. Topsoil

- 1. Natural friable soil which contains organic matter. Topsoil includes at least the top six inches of the existing site as measured after the surface vegetation has been removed. This soil shall be uniform in composition and texture, and free from subsoil, stones, trash and reasonably free of weeds and harmful chemicals. Topsoil shall not be delivered or handled when muddy or frozen.

PART 3: EXECUTION

3.01 CLEARING AND STOCKPILING

- A. Remove all debris and waste material and dispose in a proper manner. Disposal is not to be made on the Owner's property nor adjacent property without a letter from the property owner being first filed with the Owner which gives permission for such disposal.
- B. No trees are to be removed without permission of the Engineer. If any trees are destroyed in the construction of this project, replace the trees with an equivalent specimen, acceptable to the Engineer.

C. Remove and stockpile all topsoil for all areas that are to be excavated or filled.

3.02 GRADING

A. Grade the site with a motor grader or other equipment acceptable to the Engineer to produce an even, uniform appearance and to insure positive drainage during construction.

3.03 CLEANUP

A. Remove any excess excavated materials, brush or debris from the site.

END OF SECTION

**SECTION 31 23 00
EXCAVATION AND FILL**

PART 1: GENERAL

1.01 DESCRIPTION

A. 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, and compaction of roadway subgrade, general area fill, structural excavation, pipeline excavation and backfill as shown on the plans and specified herein.

1.02 QUALITY ASSURANCE

A. Testing Agency

The Contractor shall employ the services of an independent testing laboratory, acceptable to the Owner, to test the degree of compaction of all embankments and backfill. Tests which meet specifications shall be furnished at the following frequency:

1. General Fill, and Roadway Embankment - One for each 500 cubic yards of embankment or fraction thereof.
2. Structural backfill or embankment - one for each 100 cubic yards of backfill or embankment or fraction thereof.
3. Trench backfill - one for each 250 linear feet of trench or portion thereof.

The Owner shall select the exact location of each test.

The Owner will employ the services of an independent testing laboratory to test the degree of compaction of all embankments. The Owner will pay for the cost of each density test that meets the specified density. The Contractor will pay for the cost of each density test that does not meet the density requirement.

B. Reference Standards

Moisture - Density Relationships of Soils (ASTM D698)

1.03 JOB CONDITIONS

A. Classification

No classification of excavated materials will be made. Excavation work shall include the removal and subsequent handling of all materials excavated or otherwise removed in the performance of the contract work, whatever the type, composition, or conditions thereof.

B. Blasting

No blasting or use of explosives for excavation will be permitted.

C. Protection

1. When excavations are made adjacent to existing buildings, piping, or other structures or in paved streets, particular care must be taken adequately to sheet, shore, and brace the sides

of the excavation to prevent undermining of or settlement beneath the structures or pavement. Underpinning of adjacent structures or pavement shall be done by the Contractor at his own cost and expense in a manner satisfactory to the Engineer. When required by the Engineer, the pavement shall be removed, the void satisfactorily refilled and compacted, and the pavement replaced by the Contractor. The entire expense of such removal and subsequent replacement thereof shall be borne by the Contractor. Sheeting, shoring, and bracing shall not be left in place unless otherwise provided for in the contract or authorized by the Engineer. The removal of sheeting, shoring, and bracing shall be done so as not to endanger or damage either new or existing structures, private or public properties, and to avoid cave-ins or sliding of the banks. All holes or voids left by the removal of the sheeting, shoring, and bracing shall be immediately and completely filled and compacted with suitable materials. Sheeting, shoring, and bracing ordered left in place by the Engineer will be paid for at the unit price bid for this item, when such pay item is provided. In the event no separate pay item is provided, then the cost of sheeting, shoring, and bracing is to be included in such items as are provided.

2. Protect and support all utility lines and conduits exposed by excavation. The Contractor may, at his option, arrange with the Owner of the utility lines or conduits for their temporary removal and replacement. Any such arrangement shall be reviewed by the Engineer before removing any utilities. All costs incurred by this phase of the work shall be borne by the Contractor.
3. Protect existing pavement, including plant roadways, from damage from heavy equipment and vehicles with lugs throughout construction. Saw cut pavement with a concrete saw before beginning excavation. Saw cuts are to be straight and parallel to the line of work.

1.04 GUARANTEE

- A. Guarantee the backfilling of excavation and trenches against excessive (as determined by the Engineer) settlement for one year after the final completion of the contract under which the work is performed.
- B. Make all repairs or replacements necessary by settlement including refilling and compacting the upper portion of the ditch and repairing broken or settled pavements within thirty (30) days after notice from the Engineer or Owner.

PART 2: PRODUCTS

2.01 MATERIALS

A. Topsoil

Topsoil shall be natural, friable soil that contains organic matter. This soil shall be uniform in composition and texture, and free from subsoil, stones, trash and reasonably free of weeds and harmful chemicals. Topsoil shall not be delivered or handled when muddy or frozen.

B. Select Material

Excavated material which is free of rocks, lumps, organic material, clods or debris which are larger than two (2") inches in the largest dimension.

C. Suitable Material

All other excavated material including rocks, lumps, clods or debris that are larger than six (6") inches, but less than two (2') feet in the largest dimension and inorganic in nature. Trash and organic material may not be used.

D. Select Fill Material

Material which consists of low plasticity clays or lime-treated clays have a liquid limit not exceeding 35 and a plasticity index between 10 and 20.

E. Granular Material (Sand)

Material either from the ditch or imported to the job that is free of detrimental quantities of clay, debris or organic material and when tested by standard laboratory methods meets the following requirements:

Maximum liquid limit	45
Maximum plasticity index	15
Minimum plasticity index	4
Maximum percent passing No. 200 sieve	15
Minimum percent passing ¾" sieve	100

The material shall be free flowing and when wet shall not adhere to form a ball when pressed in the hand.

F. Washed Sand (Concrete Sand, Mortar Sand, or Sand Cushion)

Well graded washed material composed of hard durable quartzite particles and meeting the following requirements:

Passing ¾" sieve	100%
Passing No. 4 sieve	95 - 100%
Passing No. 8 sieve	80 - 100%
Passing No. 16 sieve	50 - 85%
Passing No. 30 sieve	25 - 60%
Passing No. 50 sieve	10 - 30%
Passing No. 100 sieve	2 - 10%
Passing No. 200 sieve	Less than 3%

G. Crushed Stone - Fine Gradation

Crushed stone consisting of hard durable limestone or quartzite particles and meeting the following requirements:

Passing ½" sieve	100%
Passing ¾" sieve	80 - 100%
Passing No. 4 sieve	15 - 60%
Passing No. 10 sieve	Less than 2%
Minimum LA Hardness	27

H. Crushed Stone - Standard Gradation

Crushed stone consisting of hard durable limestone or quartzite particles and meeting the following requirements:

Passing 2" sieve	100%
Passing 1½" sieve	95 - 100%
Passing ¾" sieve	35 - 70%
Passing ¾" sieve	0 - 15%
Passing No. 4 sieve	0 - 5%
Passing No. 10 sieve	Less than 2%

I. Cement Treated Base

As manufactured by TXI or approved equal. Base shall be delivered in ready mix transit trucks only.

J. Concrete - Used for backfill only

Conform to ASTM C94. The compressive strength of the concrete shall be at least 2000 psi and shall contain at least four (4) sacks of cement per cubic yard.

K. Unsuitable Materials

Trash, debris, organic material, or rocks larger than six (6") inches in the largest dimension. These materials shall be removed from the job site.

PART 3: EXECUTION

3.01 PREPARATION

A. Site Preparation

Prepare the construction site for construction operations by removing and disposing of all obstructions and objectionable materials from the site. Included is the removal of designated trees, bushes, grass, miscellaneous stone, brick, concrete, scrap iron and all rubbish and debris

whether above or below ground. It is the intent of this specification to provide for the removal and disposal of all objectionable materials not specifically provided for elsewhere by the plans and specifications to a depth of not less than one (1') foot below the subgrade. Accomplish the removal of such items prior to the grading and excavation operations. The removal and disposal of such items will not be measured or paid for as a separate contract pay item.

B. Pipeline Alignment, Grade and Minimum Cover

1. Determine the alignment and grade or elevation of the pipeline from offset stakes. Provide a continuous chalk line along the alignment of the trench for use by the operator of the excavation equipment. Provide a string grade line or laser beam and grade pole to assist in grading the ditch to proper elevation.
2. Should the ditch be graded below the required elevation, bring subgrade to the required elevation with concrete or crushed stone. The use of excavated materials for this application will not be allowed.
3. Where pipe grades or elevations are not definitely fixed by the contract drawing, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the top of pipe of forty-two (42") inches, unless otherwise noted for all pipes four (4") inches in diameter and larger. The minimum cover for pipes smaller than four (4") inches in diameter shall be thirty (30") inches. Greater pipe cover depths may be necessary for clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades. Measurement of pipe cover depth shall be made vertically from the outside top of pipe to finished ground or pavement surface elevations.

C. Topsoil

Strip all desirable topsoil and grass a minimum of six (6") inches over the area to be excavated or to receive embankment and stockpile separately in a careful manner for replacement over finish grading areas as directed by the Engineer and indicated on the plans.

3.02 TRENCH WIDTH

- A. Cut sides of all trenches 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 trenches in which the pipe may be installed shall not be less than eight (8") inches plus the outside diameter of the pipe, and the maximum width shall not be more than twenty (20") inches plus the outside diameter of the pipe, measured at an elevation in the trench that is twelve (12") inches above the top of the pipe when it is laid to grade.
- B. Whenever the prescribed maximum trench width is exceeded, use the next higher embedment as required by the Engineer, and the additional cost incurred will be borne by the Contractor.
- C. 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 scraper, bulldozers or other dirt moving equipment, as a preliminary to trenching for the pipe if he elects to do so. Notify Engineer of such intent to allow Engineer's review of excavation procedures.

3.03 PIPELINE EXCAVATION

A. Classification

Excavation of trenches for pipelines is unclassified. Include the cost of trenching and excavating of all materials encountered, regardless of their nature or method of removal, in the unit price bid for the various sizes of pipes unless there is a separate pay item specifically called for. The

Contractor shall investigate the site and satisfy himself as to the materials and conditions to be encountered.

B. Trench and Excavation Safety

The Contractor shall comply with Federal Regulation 29 C.F.R. 1926.650 - 1926.653.

C. Trench Excavation

1. General

- a. Excavation trenches with a trenching machine, backhoe, or dragline except where hand trenching is required. Excavate the banks of the trench vertically to a point at least one (1') foot above the top of the pipe from the bottom of the trench.
- b. Limit trench excavation to a distance of three hundred (300') feet ahead of the completed backfill.

2. Subgrade in Earth

- a. 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, carefully, and accurately trim the bottom of the trench to fit the lower portion of the pipe barrel. The bottom of the trench shall be firm, stable, and free of standing water. Excavate bell holes for each pipe joint. Accurately space bell holes and excavate them to a depth and width to allow ample room for making the joint and to relieve the pipe bell of all load.
- b. If water is allowed to collect in an originally dry trench after a reasonable time has passed to complete embedment of the pipe on a firm bottom, place a minimum of four (4") inches of compacted crushed stone in the ditch and then pump out all accumulated water before placing the pipe. No extra compensation will be allowed for this work.

3. Soft Subgrade

- a. Where wet, soft or spongy material is encountered in the excavation at subgrade level, remove such material at the direction of the Engineer and replace it with crushed stone of sufficient quantity such that when fully compacted, the subgrade is firm and stable.
- b. There shall be no extra compensation for this work unless a separate item is provided specifically for this purpose.

4. Subgrade in Rock

a. Explosives

Explosives may not be used.

b. Excavation

- (1) If the bottom of the excavation for the pipeline is in rock or other hard material that cannot be excavated to a true subgrade and shaped to provide uniform bearing for the pipe barrel, remove the rock or other material to a depth not less than four (4") inches below subgrade and bring the bottom of the trench to true subgrade elevation by filling with crushed stone or suitable rock cuttings and shavings from the excavation and compacting by means of tamping until a firm and uniformly unyielding foundation is obtained, as required by the Engineer.

- (2) There shall be no extra compensation for this work unless a separate pay item is provided specifically for this purpose.

3.04 GENERAL EXCAVATION

- A. Excavate in such a manner to conform to the dimensions and elevations indicated on the drawings.
- B. No organic excavated materials may be used in construction of the required roadways, levees and embankments shown on the plans.
- C. All unsuitable excavated material will be disposed of on-site by the Contractor as directed by Owner.
- D. The Contractor shall at all times make ample provisions for completely and readily draining the subgrades and excavations during construction.

3.05 EMBANKMENT

A. General

1. Embankment will be constructed from suitable excavated materials. Trees, stumps, roots, vegetation, or other unsuitable material shall not be placed in the embankment.
2. The maximum dimensions of any rock, clod, lump, or debris shall be less than the depth of the embankment layer, and in no case will any rock more than two (2') feet in its maximum dimension be placed in an embankment.
3. Any oversized rock that is otherwise acceptable material may be broken to the required dimensions and utilized in the embankment construction.

B. Roadway Embankment

1. Roadway embankment shall be defined as "select" material from excavation used in the embankment under proposed pavement surfaces.
2. Roadway embankments shall be constructed in successive layers for the full width of the proposed pavement and in such lengths as are best suited to the sprinkling and compaction methods used.
3. Before compaction, each layer shall not exceed six (6") inches in depth for pneumatic tire rolling or eight (8") inches in depth for rolling with other types of rollers.
4. Each layer shall be uniform as to material, density, and moisture content before beginning compaction. Where layers of unlike materials abut each other, each layer shall be feather edged or the materials so mixed as to prevent abrupt changes in the materials.
5. Roadway embankment shall be compacted to the requirements specified in "Density."

C. Earth Embankment

1. Earth embankment shall be defined as embankment composed principally of suitable materials not placed under proposed pavement or structure.
2. Earth embankments shall be constructed in successive layers for areas and in such lengths as are best suited to the sprinkling and compaction methods used.

3. Before compaction, each layer shall not exceed six (6") inches in depth for pneumatic tire rolling or eight (8") inches in depth for rolling with other types of rollers.
4. Each layer shall be uniform as to material, density, and moisture content before beginning compaction. Where layers of unlike materials abut each other, each layer shall be feather edged or the materials so mixed as to prevent abrupt changes in the materials.
5. Earth embankment shall be compacted to the requirements in "Density" and to the lines and grades shown on the plans.

3.06 EMBANKMENT COMPACTION

After each embankment layer has been spread to uniform depth, sprinkle each layer with water to bring the moisture content to the level specified in "Density" for maximum compaction before rolling. Compact layers by any method, type and size of equipment that will give the requirements specified in "Density."

3.07 TRENCH BACKFILLING

- A. Do not begin backfilling until approval has been obtained from the inspector.
- B. Backfilling includes the refilling and consolidation of the fill in trenches and excavations up to the natural ground surface or road grade. Use backfill material consisting of good earth, sand, or gravel and which is free from large rocks or hard lumpy material. Do not use perishable, spongy or otherwise unsuitable material.
- C. Do not leave trenches open overnight without backfilling to the natural ground level. Backfill immediately after installing the pipe, if there is a possibility of the trench side sliding or caving in.

D. Backfilling - Density Controlled

Where a specific density above 85% is specified in the backfill, the following procedure is to be used:

1. Place the specified embedment material on both sides of the pipe simultaneously in layers of not more than four (4") inches and compact with a mechanical tamper.
2. Place the backfill material in the ditch in not more than six (6") inch layers. Sprinkle lightly with water if necessary to bring the soil up to optimum moisture. Mechanically tamp the layer sufficiently to produce the required density.

E. Backfilling - Water Jetted

Water jetting of ditches is not permitted.

3.08 BACKFILL SCHEDULE

A. Density Controlled Backfill - 95% ASTM D698 and moisture content 0% to 4% over Optimum Moisture.

1. Structural Fill and Backfill

- a. Under proposed pavement, floor slabs, buildings, and sidewalks. Use granular material (sand) to backfill under floor slabs where shown on the plans.
- b. Under existing or proposed pipes four (4") inches in diameter or larger for a horizontal distance of five (5) feet each way from the centerline of the pipe and vertically in the centerline of the pipe.

2. Trench Backfill

- a. Where pipes cross under existing or proposed paving including gravel and flex base roadways to a point five (5') feet each way beyond the edge of the paving.
- b. Where pipes cross under existing or proposed pipes, four (4") inches or larger in diameter, for a horizontal distance of five (5') feet each way from the upper pipe and vertically up to the centerline of the upper pipe.
- c. Where pipes are located under any building slab or foundation to a point a distance of five (5') feet from the edge of the slab or foundation. This is a minimum requirement. A higher class of backfill may be called for elsewhere.

3. Roadway Embankment

All fill under roadways as well as the top six inches of subgrade whether or not it is fill material.

- 4. "Proposed" in this section means any facility that is shown on the plans, whether existing, proposed or future.

B. Density Controlled Backfill - 95% ASTM D698 and moisture content 0% to 4% over Optimum Moisture.

All other backfill and embankment.

3.09 PAVEMENT REPAIR (INCLUDING GRAVEL OR FLEX BASE ROADWAYS)

- A. Repair pavement with equal materials and thicknesses as the pavement section being cut. All asphalt and concrete pavement shall be sawcut before excavation.

B. Pavement repair is not a pay item.

3.10 DISPOSAL OF EXCAVATED MATERIALS

Disposal of excess excavated suitable materials will be on the project site at a location and in the manner directed by the Owner. Unsuitable materials shall be removed from the site and disposed of by the Contractor at his cost.

Excess excavated materials shall be removed from the site unless written permission is given by the Owner to do otherwise.

END OF SECTION

SECTION 32 13 13 CONCRETE PAVING

PART 1: GENERAL

1.01 DESCRIPTION

A. Scope

This section covers the design and placing of concrete, placement of expansion material and construction of joints for concrete pavement. Section 03 30 00, Cast-in-Place Concrete, shall be followed for the design mixing and curing of the concrete except as noted in this section.

B. Related Work Specified Elsewhere

1. Section 03 11 00 - Concrete Forming
2. Section 03 20 00 - Concrete Reinforcing
3. Section 03 30 00 - Cast-in-Place Concrete

1.02 QUALITY ASSURANCE

A. Design Criteria

1. Strength - Unless otherwise specified, all concrete for pavement shall be designed to have a compressive strength of 3,600 psi at 28 days.
2. Slump - The following limits of slump shall be used for control of the design and placing of concrete:

Type of Construction	Max. Slump in Inches
Slip-Form Method	3
Side Form Method	5

PART 2: PRODUCTS

2.01 MATERIALS

- A. Concrete - As specified in Section 03 30 00 - Cast-in-Place Concrete
- B. Reinforcing Steel - As specified in Section 03 20 00 - Concrete Reinforcing
- C. Joint Sealing Compound - Hot poured rubber conforming to Texas Department of Transportation Specification Item 360.2(8c), Joint Sealing The joint sealing compound shall melt to the proper consistency for pouring and shall solidify on cooling to atmospheric temperatures. It shall adhere to the sides of the concrete joint or crack and the material shall not crack or break when exposed to low temperatures. The joint sealing fiber shall be melted in an approved oil-batch kettle with continuous mechanical agitation. The kettle shall be equipped with temperature indicators. At no time shall the temperature exceed 450° F (232° C); any material heated above 450 degrees Fahrenheit shall be rejected. Joint sealing compound shall not be poured at atmospheric temperatures below 32° F (0° C). The material when tested in accordance with TxDOT Test Method Tex-525-C shall meet the following requirements:

1. Penetration: At 0° C (32° F), 200 grams (7 oz.), 60 sec.-not less than 0.28 cm (0.1 in.).
At 25° C (77° F), 150 grams (5 oz.), 5 sec.-0.45-0.75 cm (0.3 in.).
2. Flow: At 5 hours, 140° F (60° C), 74° incline-not more than 0.5 cm (0.2 in.).
3. Bond Extension: 15° F (-9° C), 5 cycles. There shall be no cracking of the joint sealing material or break in the bond between the joint sealer material and the mortar pieces.

The thickness of the expansion joint filler shall be shown on the plans. The width shall not be less than that shown on the plans, which provides for the top seal space. Expansion joint filler may be rejected for failure to meet any of the requirements of this specification. Thermoplastic cold-applied material may be used if approved by the Engineer, and it shall be installed according to the manufacturer's recommendations.

- D. Expansion Joint Material - Boards for expansion joint filler and for contraction and longitudinal joints shall be of the size, shape and type indicated on the plans. Board shall be obtained from Redwood, Cypress, Gum, Southern Yellow Pine or Douglas Fir timber. They shall be sound heartwood and shall be free from sapwood, knots, clustered birdseyes, checks and splits. Occasional sound or hollow birdseyes, when not in clusters will be permitted provided the board is free from any other defects that will impair its usefulness as a joint filler. With the exception of Redwood and Cypress, all boards shall have a creosote or pentachlorophenol treatment of 6 pounds per cubic foot or more. When oven dried at 230° F to a constant weight, the weight of the board per cubic foot (minus treatment) shall not be less than 20 pounds, nor more than 35 pounds.

2.02 MIXING

Only ready-mixed concrete shall be used.

PART 3: EXECUTION

3.01 INSPECTION

- A. Before beginning the placement of concrete, check the base for grade and cross section. Make corrections as required.
- B. Inspect all forms for alignment and rigidity. Tighten all form supports and make corrections to alignment as required.
- C. Inspect all reinforcing steel for rust and debris, remove as required.
- D. Inspect all equipment to be used for placing, spreading and consolidating concrete for defects which might affect the reliability of such equipment during the placing operation. If the use of pumping conveying has been authorized, such pumping equipment shall be furnished in duplicate to assure the concrete placing operation is uninterrupted by equipment failure.

3.02 PREPARATION

- A. Clean all dirt, mud, water and debris from the forms and any space to be occupied by concrete. All surfaces encrusted with dried concrete from previous placement operations shall be cleaned.
- B. Sprinkle semi-porous subgrades and reinforcing steel sufficiently to eliminate absorption of water from the concrete.
- C. Place bulkheads for construction and expansion joints accurately and securely.

- D. The surface of hardened concrete upon which fresh concrete is to be placed shall be rough, clean and damp.
- E. Grade and compact subgrade material to the lines and grades shown on the plans.
- F. Place forms on subgrade staking each ten (10') foot section with at least three (3) pins. A pin shall be placed at each side of every joint in the forms.

3.03 CONCRETE PLACEMENT

- A. Place concrete in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- B. Side forms of slip form paver shall be sufficient length so that no appreciable edge slumping will occur.

3.04 JOINT PLACEMENT

A. Construction Joints

1. Intentional stoppage of concrete placing shall be at the planned location of either an expansion joint, contraction joint, or dummy joint. When the stoppage occurs at an expansion joint, the joint assembly as shown on the plans for an expansion joint shall be installed with a bulkhead of sufficient section to prevent deflection, shaped accurately to the concrete section, and drilled to accommodate the required dowels. When the stoppage occurs at either dummy joint or a contraction joint, the construction joint as detailed on the plans shall be used. The Contractor shall furnish a bulkhead of sufficient section to prevent deflection and shaped to the concrete section. This bulkhead shall be drilled to permit the continuation of all longitudinal reinforcing steel through the construction joint.
2. Immediately upon the unintended stoppage of the placing of concrete, the Contractor shall place the available concrete to a line, and install the above described bulkhead at right angles to the center line of the pavement perpendicular to the surface and at required elevation. Concrete shall be placed and finished to this bulkhead. Any concrete remaining on the subgrade ahead shall be removed and disposed of as directed. When placing of concrete is resumed before the concrete has set to the extent that the concrete will stand on removal of the bulkhead, the new concrete shall be rodded with the first; otherwise, the joint face must be carefully preserved. An edge created by a construction joint of this type shall have a joint seal space as detailed on the plans.

B. Expansion Joints

1. Transverse expansion joints shall be formed perpendicular to the center line and surface of the pavement at a maximum spacing of 600 feet. Expansion joints will also be constructed at or near the radius points of all street intersections, turns in alignment, and median openings. A joint filler accurately shaped to the cross section of the bottom and top of the concrete section and of a depth sufficient to provide a seal space of the size shown on the plans, shall be securely fastened in place and in contact with the subgrade for its entire length. Holes of proper size to hold the center of the dowel bars accurately in position, and of diameter not more than 1/8" greater than the dowel bar diameter, shall be drilled in the correct location to secure the dowel bar spacing required by the plans.
2. After the transverse finishing machine has passed over the joint, the Contractor shall test the joint assembly for correctness of position and make any required adjustment, and shall install the joint seal form in a manner to permit its removal. The joint edges shall be rounded to 1/4" radius. After the concrete has taken its initial set, the top filler forming the space for the joint seal shall be removed without disturbing the joint filler or the adjacent concrete; and the joint

seal space shall be thoroughly cleaned and the concrete faces of the joint seal space shall be left true to line and section throughout the entire length of the joint.

3. Upon the completion of the curing of the concrete, the top of each joint shall be filled with the seal material designated on the plans and as specified. The concrete shall be clean and the surface dry when the seal is placed. Precaution shall be taken to prevent pouring of seal material on the exposed concrete surface adjacent to the joint. Any material applied to adjacent surfaces shall be immediately removed.

C. Dummy Joints

1. Transverse and longitudinal dummy joints shall be sawed joints made with the use of an approved power-driven concrete saw in accordance with the specifications and as detailed on the plans.
2. The sawing of contraction and dummy joints shall be accomplished after completion of the finishing operations as soon as the concrete has hardened to the extent necessary for operation of the saw without causing slipping of the joint or damage to the adjacent concrete surface. Joints shall be sawed the same day that the concrete is poured. In all cases, joints will be sawed before eight (8) hours after the placing of the concrete.
3. The concrete saw shall be power-driven, shall be manufactured especially for the purpose of sawing concrete, and shall be suitable for the work to be performed, and the machine shall be maintained in good operating condition. Saw blades shall make a clean smooth cut, producing a groove 1/8" to 3/16" wide and to the full depth shown on the plans. The joints shall be cleaned and sealed with the indicated joint compound immediately after the completion of curing and in conformance with paragraph (B) above.
4. The spacing and location of the joints shall be indicated on the plans, but not more than fifteen (15') feet apart each way.

D. Contraction Joints

The specification for contraction joints is the same as for dummy joints with the additional requirement that reinforcement shall be stopped at the joint, and dowels coated and spaced as shown on the drawings shall be placed through the joint as shown on the plans.

E. Longitudinal Joints

1. Longitudinal joints shall be constructed along the center line of the concrete base or pavement or parallel thereto as shown on the plans. The joint shall be of the type indicated on the plans, accurately placed and maintained to the required line, and the concrete surface adjacent to the joint shall be finished as specified.
2. Longitudinal joints of the type shown on the plans will be required on all streets with widths in excess of twenty-one (21') feet. Longitudinal joints shall be at locations shown on plans or as approved by the Owner. All longitudinal joints shall be constructed and finished according to the specifications for the respective transverse joints.

3.05 FINISHING PAVEMENT

- A. The addition of superficial water to the surface of the concrete to assist in finishing operations generally will not be permitted. If the application of water to the surface is permitted, it shall be applied as a fog spray.
- B. Coarse Broom Finish - If the pavement surface texture is to be a type of broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate longitudinally with the pavement surface, providing corrugations that are uniform in appearance

and approximately 1/16 of an inch in depth. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected.

- C. Brush Finish - If the pavement is to receive a brush finish, after the concrete has been properly placed and struck off, use a wood or aluminum float to produce an even, smooth finish, then use a hair broom to produce a brush finish.

3.06 CURING

Comply with Section 03 30 00 - Cast-in-Place Concrete

3.07 TESTING

Comply with Section 03 30 00 - Cast-in-Place Concrete

END OF SECTION

SECTION 32 17 23
PAVEMENT MARKINGS

PART 1: GENERAL

1.01 SUMMARY

A. Section Includes:

1. Traffic lines, legends and markings on asphalt and concrete surfaces.
2. Waterborne Traffic Paint.
3. Thermoplastic Pavement Markings.
4. Glass beads.

B. Related Sections:

1. Section 32 12 16 - Asphalt Paving.
2. Section 32 13 13 - Concrete Paving.

1.02 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO M247 - Standard Specification for Glass Beads Used in Traffic Paint.
2. Texas Manual on Uniform Traffic Control Devices (TMUTCD)
3. TxDOT Pavement Marking Handbook and standards

1.03 PERFORMANCE REQUIREMENTS

A. Paint Adhesion: Adhere to road surface forming smooth continuous film one minute after application.

B. Paint Drying: Tack free by touch so as not to require coning or other traffic control devices to prevent transfer by vehicle tires within 10 minutes after application.

1.04 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit paint formulation for each type of paint and glass beads if required.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

D. Manufacturer's Installation Instructions: Submit instructions for application temperatures, eradication requirements, application rate, line thickness, and application of glass beads if required.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with Section 01 45 00 – Quality Control and 01 60 00 – Product Requirements

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum 5 years' experience.
- B. Applicator: Company specializing in performing work of this section with minimum 5 years' experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Invert containers several days prior to use when paint has been stored more than two months. Minimize exposure to air when transferring paint. Seal drums and tanks when not in use.
- C. Where glass beads are required, store glass beads in cool, dry place. Protect from contamination by foreign substances.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer or:
 - 1. Waterborne Paint: Apply when ambient air temperature and surface temperature is minimum 40 degrees F and rising and a maximum of 160 degrees F.
 - 2. Thermoplastic: Do not apply until ambient air temperature and temperature of the pavement is 50 degrees F or higher.
- C. Do not apply materials during rain or snow when relative humidity is outside humidity ranges or moisture content of surfaces exceed those required by paint product manufacturer.
- D. Volatile Organic Content (VOC). Do not exceed State or Environmental Protection Agency maximum VOC on traffic paint.

PART 2: PRODUCTS

2.01 PAVEMENT MARKINGS

- A. Manufactures:
 - 1. Franklin Paint Company (franklinpaint.com).
 - 2. EZ-Liner Industries (ezliner.com).
 - 3. TAPCO, Inc. (tapconet.com).
 - 4. Pervo Paint Company (pervo.com).
 - 5. Approved Equal
- B. Waterborne Paint: Ready mixed, fast dry waterborne traffic paints, lead-free, non-toxic, suitable for roadway or parking lots. Paint shall conform to TxDOT DMS-8200.
- C. Pigments shall conform to TxDOT DMS-8200.
- D. Thermoplastic: Alkyd based ready mixed, fast dry, lead free, non toxic, for roadways.

- E. Glass Beads: AASHTO M247, Type 1, coated to enhance embedment and adherence with waterborne paint and thermoplastic material. Beads shall have a minimum of 70% true spheres. All pavement markings shall include glass beads.

2.02 EQUIPMENT

- A. Roadway Application for Continuous Longitudinal Lines: Use equipment with following capabilities.
 - 1. Dual nozzle paint gun to simultaneously apply parallel lines of indicated width in solid or broken patterns or various combinations of those patterns.
 - 2. Pressurized bead-gun to automatically dispense glass beads onto painted surface, at required application rate.
 - 3. Measuring device to automatically and continuously measure length of each line placed, to nearest foot.
 - 4. Device to heat paint to manufacturer's temperature recommendation for fast dry and thermoplastic applications.
- B. Machine Calibration: Calibrate machines to meet specified tolerances.
- C. Other Equipment: For application of crosswalks, intersections, stop lines, legends and other miscellaneous items by walk behind stripers, hand spray or stencil trucks, apply with equipment meeting requirements of this section. Do not use hand brushes or rollers. Optionally apply glass beads by hand.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Do not apply paint to concrete surfaces until concrete has cured for 28 days.

3.02 PREPARATION

- A. Maintenance and Protection of Traffic:
 - 1. Provide short term traffic control as necessary.
 - 2. Prevent traffic from interrupting or driving on newly applied markings before markings dry.
 - 3. Maintain roadway travel lanes between 7:00 a.m. to 9:00 a.m. and between 4:00 p.m. and 6:00 p.m.
 - 4. Maintain access to existing businesses and other properties requiring access.
- B. Surface Preparation.
 - 1. Clean and dry paved surface prior to painting.
 - 2. Blow or sweep surface free of dirt, debris, oil, grease, or gasoline.
 - 3. Spot location of final pavement markings as specified and as indicated on Drawings by applying pavement spots 25 feet on center.
 - 4. Notify Engineer after placing pavement spots and minimum three days prior to applying traffic lines.

3.03 EXISTING WORK

- A. Remove existing markings in an acceptable manner. Do not remove existing pavement markings by painting over with black paint. Remove by methods that will cause least damage to pavement structure or pavement surface. Satisfactorily repair any pavement or surface damage caused by removal methods.
- B. Clean and repair existing or remaining lines and legends.

3.04 APPLICATION

- A. Agitate paint for 1-15 minutes prior to application to ensure even distribution of paint pigment.
- B. Dispense paint at temperature recommended by manufacturer to wet-film thickness of 15 mils.
- C. Dispense thermoplastic at temperature recommended by manufacture to thickness of:
 - 1. 120 mils for center lines, skip lines, transverse markings, and legends.
 - 2. 90 mils for edge lines diagonals and arrow symbols.
- D. Apply glass beads at rate of 1 to 3 pounds per gallon of paint.
- E. Apply markings to indicated dimensions at indicated locations.
- F. Prevent splattering and over spray when applying markings.
- G. Unless material is track free at end of paint application convoy, use traffic cones to protect markings from traffic until track free.
- H. When vehicle crosses a marking and tracks it or when splattering or overspray occurs, eradicate affected marking and resultant tracking and apply new markings.
- I. Collect and legally dispose of residues from painting operations.

3.05 APPLICATION TOLERANCES

- A. Maximum Variation from Wet Film Thickness: 1 mil.
- B. Maximum Variation from Wet Paint Line Width: Plus or minus 1/8 inch.
- C. Maintain cycle length for skip lines at tolerance of plus or minus 6 inches per 40 feet and line length or plus or minus 3 inches per 10 feet.
- D. Maximum Variation from Specified Application Temperature: Plus or minus 5 degrees F.

3.06 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect for incorrect location, insufficient thickness, line width, coverage, retention, uncured or discolored material, and insufficient bonding.
- C. Repair lines and markings which after application and curing do not meet following criteria:
 - 1. Incorrect Location: Remove and replace incorrectly placed patterns.
 - 2. Insufficient Thickness, Line Width, Paint Coverage, Retention or Glass Bead Coverage (where required): Prepare defective material by acceptably grinding or blast cleaning to remove substantial amount of beads and to roughen marking surface. Remove loose particles and debris. Apply new markings on cleaned surface in accordance with this Section.
 - 3. Uncured or Discolored Material, Insufficient Bonding: Remove defective markings in accordance with this Section and clean pavement surface one foot beyond affected area. Apply new markings on cleaned surface in accordance with this Section.
- D. Replace failed or defective markings in entire section of defective markings within 30 days after

notification when any of the following exists:

1. Marking is discolored or exhibits pigment loss and is determined to be unacceptable by visual comparison with beaded color plates.
 2. If glass beads are used, the average retro-reflectivity is less than 375 mcd/m²/lux for white pavement markings and 250 mcd/m²/lux for yellow pavement markings.
- E. When eradication of existing paint lines is necessary, eradicate by shot blast or water blast method. Do not gouge or groove pavement more than 1/16 inch during removal. Limit area of removal to area of marking plus 1 inch on all sides.
- F. Maintain daily log showing work complete, results of inspections or tests, pavement and air temperatures, relative humidity, presence of any moisture on pavement, and any material or equipment problems. Make legible entries in log in ink, sign, and submit by end of each work day. Enter environmental data into log prior to starting work each day and at two additional times during day.

3.07 PROTECTION OF FINISHED WORK

- A. Protect painted pavement markings from vehicular and pedestrian traffic until paint is dry and track free. Follow manufacturer's recommendations or use minimum of 30 minutes. Consider barrier cones as satisfactory protection for materials requiring more than two minutes dry time.

END OF SECTION

SECTION 32 92 19 SEEDING

PART 1: GENERAL

1.01 DESCRIPTION

A. Related Work Specified Elsewhere:

Section 31 22 19 - Finish Grading

B. Scope - This section covers seeding and sodding of areas disturbed during construction including labor, transportation, materials, services, and equipment.

1.02 JOB CONDITIONS

A. Planting Season - The season for planting shall be as specified for the type of seed that is used. Only upon written permission of the Owner, may planting begin earlier or continue later than specified.

B. Moisture - Planting and especially seeding shall be done during periods when satisfactory results are likely to be obtained. Stop work when conditions are such; because of drought, excessive moisture, or other factors, that results are not likely to be satisfactory and resume only when desired results are likely to be obtained.

1.03 GUARANTEE

A. Guarantee the seeded and sodded grass completely to cover the site with viable grass of the type specified at the date of acceptance. The liquidated damages for lack of coverage at the date of acceptance shall be \$0.50 per square foot of thin or uncovered areas as determined by the Engineer. Coverage shall be defined as being unable to see bare soil or dead grass when standing over the grass, with the grass mowed to a height of three (3") inches.

B. At the date of final acceptance, with grass coverage established as defined above, the Owner will assume responsibility for routine watering, fertilizing, and mowing necessary to maintain the grass.

C. Guarantee all workmanship, plant materials and other materials by the Contractor for a period of one (1) year, including one full growing season, from the date all the planting is completed, against any and all defects other than resulting from neglect by the Owner, abuse or damage by others, or unusual phenomena or incidents that are beyond the Contractor's control.

PART 2: PRODUCTS

2.01 MATERIALS

A. Grass Seed

The seeds planted per acre shall be of a type specified with the mixture, rate and planting dates as follows:

Rye Grass - 70 lb. - September 15 through February 15.

Bermuda Grass (*Cynodon Dactylon*) - hulled - 20 lb. - February 16 through September 14.

All seed used shall be labeled according to the US Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of Proposal. All seed shall be furnished in sealed standard containers unless exception is granted in writing by the Engineer. Seed that has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

Seed shall be new crop seed, free of Johnson grass, field bindweed, and dodder seed, and free of other weed seed to the limits allowable under the Federal Seed Act and applicable State seed laws. The seed shall be hulled and have a germination and purity that will produce after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 75 percent.

B. Commercial Fertilization

A complete commercial fertilizer with an organic base shall be uniform in composition, dry and free flowing. Fertilizer shall be delivered to site in original, unopened containers, each bearing manufacturer's guaranteed statement of analysis. Fertilizer shall meet following requirements, unless otherwise noted:

- 18 percent Nitrogen
- 46 percent Phosphoric Acid

C. Hay Mulch

Mulch shall be locally obtained hay. Materials that contain excessive amounts of objectionable weed seeds or other species that might be detrimental to the planting being established will not be acceptable. Mulch materials that are fresh and excessively brittle, or that is in such an advanced stage of decomposition as to smother or retard the growth of grass, will not be acceptable. It shall be kept in a dry condition.

D. Mulch

Mulch shall be cellulose fiber produced by grinding clean, whole wood chips. Mulch materials that are fresh and excessively brittle, or that is in such an advanced stage of decomposition as to smother or retard the growth of grass, will not be acceptable. It shall be kept in a dry condition.

E. Water

Water shall be fresh and free from harmful amounts of oil, acid, alkali, salts, or other materials harmful to the growth of plants. Water used in the non-potable water system is acceptable.

PART 3: EXECUTION

3.01 SOIL PREPARATION

Pulverize the soil to a depth of four (4") inches by discing, roto-tilling or other process approved by the Engineer that will result in a fine homogeneous mixture.

3.02 ESTABLISHMENT OF TURF

A. Seeding

1. Fertilizing

Apply a minimum of 100 lbs. of fertilizer and 50 lbs. of 0-0-60 potash per acre.

2. Leveling

Level surface irregularities resulting from discing or other operations before seeding.

3. Broadcast Seeding

Uniformly grass seed on areas to be seeded at the rate specified with a cyclone seeder or grass seed drill. On the pump station site, apply seed at a rate of three (3) pounds per 1,000 square feet. Plant seed at a depth of $\frac{1}{4}$ " to $\frac{1}{2}$ ". Plant seed immediately following compaction and smoothing and before watering. Where a cyclone seeder is used, cover the seed after planting by light harrowing or rolling.

4. Disked Seeding

Soil over the area shown on the plans as directed to be seeded shall be loosened to a minimum depth of 3 in. All particles in the seedbed shall be reduced to less than 1 in. in diameter, or they shall be removed. The area shall then be finished to the line and grade. Seed or seed mixture specified shall then be planted at the rate required, and application shall be made uniformly. If the sowing of seed is by hand rather than by mechanical methods, seed shall be sown in two directions at right angles to each other. Seed and fertilizer may be distributed at the same time, provided the specified uniform rate of application for both is obtained. After planting, the seed shall be raked or harrowed into the soil to a depth of approximately $\frac{1}{8}$ in. The planted area shall then be rolled with a corrugated roll of the "Cultipacker" type. All rolling of the slope area shall be on the contour.

5. Asphalt Mulch Seeding

Soil over the area shown on the plans, or as directed to be seeded, shall be loosened to the minimum depth of 3 in. All particles in the seedbed shall be reduced to less than 1 in. in diameter; or they shall be removed. The area shall then be finished to line and grade. Water shall then be applied to the cultivated area of the seedbed until a minimum depth of 6 in. is thoroughly moistened. After watering, when the ground has become sufficiently dry to be loose and pliable, the seed or seed mixture specified shall then be planted at the rate required, and the application shall be made uniformly. If the sowing of seed is by hand rather than mechanical methods, the seed shall be sown in two directions at right angles to each other. Seed and fertilizer may be distributed at the same time, provided the specified uniform rate of application for both is obtained. After planting, the seed shall be raked or harrowed into the soil to a depth of approximately $\frac{1}{4}$ in. The planted area shall then be rolled with a smooth roller, developing 15 to 25 psi contract pressure upon the planted surface area, and giving a smooth surface without ruts or tracks. In between the time compacting is completed and asphalt is applied, the planted area shall be watered sufficiently to assure uniform moisture from the surface to a minimum of 6 in. in depth. Application of asphalt shall follow the last watering as rapidly as possible. Asphalt shall be of a type and grade as shown on the plans. If the type of asphalt to be used is not shown on the plans, or if plans are not included, then MS-2 shall be used. Application of asphalt shall be at a rate of 3/10ths gallons per square yard. Asphalt shall be applied to the area in such a manner so that a complete film is obtained, and the finished surface shall be comparatively smooth.

6. Hydro Mulching

Seed or seed mixture, in the quantity specified, shall be uniformly distributed over the areas shown on the plans or where directed. Seed, mulch, and fertilizer shall be distributed as a slurry using acceptable hydraulic application equipment. The planted area shall be rolled with a smooth roller, developing 12 to 25 psi contact pressure with the planted surface area, and have a smooth surface without ruts or tracks. After compaction is completed, the planted area shall be watered sufficiently to assure the soil in the area is continuously kept wet from the surface to a depth of six inches until the grass growth is established and the grass has completely covered the area.

7. Mulching

After seeding operations have been completed and before watering, uniformly cover the planted area with hay mulch applied at the rate of 1½ tons per acre. Anchor mulch by rolling with a disc plow positioned for minimum tillage or other approved means.

3.03 MAINTENANCE

Maintain all plant materials under this contract by watering, cultivating, weeding, spraying, and replacing as necessary to keep plants in a vigorous, healthy condition, until final acceptance.

A. Watering

Water as necessary to keep the top six (6") inches of soil moist.

B. Weeding

Hoe or pull out all weeds over all newly planted plant areas at least once a week.

C. Mowing

Mow the areas under construction once a week.

D. Fertilizing

Apply a minimum of 100 lbs. of fertilizer and 50 lbs. of 0-0-60 potash per acre every eight weeks during the growing season.

3.04 CLEANUP

Keep premises neat and orderly at all times during work. Remove trash, including debris resulting from removing weeds or rocks from planting areas, prepared beds, or planting beds from the site daily as work progresses. Leave site broom clean at the end of the job.

3.05 LIMITS OF SEEDING AND SODDING

The Contractor is to seed all excavated areas, areas of embankment and all existing grassed areas destroyed during the construction of this project. Excluded are areas which, at the time of construction, are under cultivation and which are to receive solid block sodding. Solid block sodding shall be placed on the areas shown on the plans.

END OF SECTION

SECTION 32 92 23

SODDING

PART 1: GENERAL

1.01 DESCRIPTION

- A. Scope: The work of this section includes all labor, material, and equipment required to apply grass sod to existing grass lawns disturbed during construction, and proposed grass lawns indicated on the drawings.
- B. Related Work Specified Elsewhere: Section 31 22 19 Finish Grading

1.02 JOB CONDITIONS

- A. Sodding Season - The season for placement of sod shall be as specified by the grower for the species used. Only with written permission of the Engineer, may sodding begin earlier, or continue later, than specified.
- B. Moisture - Sodding shall be done during periods when the grass is likely to take root and grow. Stop work when conditions such as drought, excessive moisture, or prolonged extreme temperatures are likely to kill the grass.

1.03 GUARANTEE

- A. Areas indicated on the drawings shall receive full coverage with sod of correct species by the date of acceptance of the work. Liquidated damages for lack of coverage on this date shall be \$1.00 per square foot of uncovered areas as determined by the Engineer. Coverage shall be defined as areas where bare soil and dead grass are not visible with the grass mowed to a height of three (3") inches.
- B. At the date of final acceptance, with grass coverage established as defined above, the Owner will assume responsibility for routine watering, fertilizing, and mowing necessary to maintain the grass.
- C. Guarantee workmanship and materials by the Contractor for a period of two (2) years, including two full growing seasons from the date the planting is completed, against any and all defects other than those resulting from neglect by the Owner, abuse or damage by others, or unusual phenomena or incidents that are beyond the Contractor's control.

PART 2: PRODUCTS

2.01 MATERIALS

A. Sod

Sod shall consist of live, growing grass secured from sources where soil is fertile. Species shall be Bermuda grass (*Cynodon Dactylon*). Sod to be placed during the dormant season for these grasses shall be inspected by the Engineer to verify that the grass is acceptable. Sod shall be free of weeds or other grasses, and shall not contain matter deleterious to its growth, or which might affect its subsistence or hardness when transplanted. Sod shall be planted not more than three days after it is excavated.

B. Commercial Fertilization

Commercial fertilizer shall have an organic base, be uniform in composition, dry, and free-flowing. Fertilizer shall be delivered to site in original, unopened containers, each bearing manufacturer's guaranteed statement of analysis. Fertilizer shall meet the following requirements, unless otherwise noted:

18 percent	Nitrogen
46 percent	Phosphoric Acid

C. Water

Water shall be fresh and free from harmful amounts of oil, acid, alkali, salts or other materials harmful to the growth of plants.

PART 3: EXECUTION

3.01 SOIL PREPARATION

Pulverize the soil to a depth of four (4") inches by discing, roto-tilling or other process approved by the Engineer that will result in a fine homogeneous mixture.

3.02 ESTABLISHMENT OF TURF

A. Fertilizing

Apply a minimum of 100 lbs. of fertilizer per acre, and 50 lbs. of 0-0-60 potash per acre, to topsoil prior to sodding.

B. Leveling

Level topsoil surface irregularities prior to sodding.

C. Sodding

Sod shall be placed in locations indicated on the drawings. Any voids shall be filled with additional sod. Place adjacent blocks of sod tightly together such that joints between blocks are invisible. Stagger end joints to form a "running bond" pattern. At corners and edges of the sodded area, avoid cutting pieces to smaller than two square feet, or narrower than one foot. The entire sodded area shall be rolled and tamped to form a thoroughly compact mass. When necessary, the sodded area shall be smoothed after planting to conform to the finished grades indicated on the drawings, or grades which existed before construction, and to form a smooth surface.

3.03 MAINTENANCE

Maintain sod by watering, weeding, spraying, and replacing as necessary to keep grass in healthy condition until final acceptance of the work.

A. Watering

Water as necessary to keep the top six (6") inches of soil moist.

B. Weeding

Remove weeds over sodded areas at least once per week.

C. Mowing

Mow as required to maintain a maximum grass height of three (3") inches.

D. Fertilizing

Apply a minimum of 100 lbs. of fertilizer and 50 lbs. of 0-0-60 potash per acre every eight weeks during the growing season, prior to final acceptance of the work.

3.04 CLEANUP

Keep premises neat and orderly during the work. Remove trash, debris, and unused materials from the site daily as work progresses. Leave site broom clean at the end of the job.

3.05 LIMITS OF SODDING

Sod all excavated areas, areas of embankment, and existing grassed areas disturbed during construction which are not covered by proposed pavement or above-grade structures.

END OF SECTION