**PROJECT MANUAL**

# LAMAR DIXON SOCCER COMPLEX

**Ascension Parish, Louisiana**

**District No. 3**

9039 S. ST. LANDRY AVE.
GONZALES, LA 70737

**PROJECT NO.: 2015.0001**

**RECREATION NO.: REC-13-001**

PARISH PRESIDENT
*Kenny Matassa*

COUNCIL MEMBERS 2016-2020
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*William Dawson, District 2*
*Travis Turner, District 3*
*Daniel Satterlee, District 4*
*Dempsey Lambert, District 5*
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*Aaron Lawler, District 7*
*Teri Casso, District 8*
*Todd Lambert, District 9*
*John Cagnolatti, District 10*
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April 2016
Prepared by:
Quality Engineering & Surveying, LLC

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# DIVISION 0

# BIDDING AND CONTRACT REQUIREMENTS

# Parish of Ascension

www.ascensionparish.net

**KENNY MATASSA**
**ASCENSION PARISH PRESIDENT**

ADVERTISEMENT FOR BID
Lamar Dixon Soccer Complex
PROJECT # 2015.0001

Sealed Bids will be received by the Ascension Parish Government at the Ascension Parish Government Purchasing Office, 120 East Railroad Street, Gonzales, Louisiana 70737 (mailing address PO Box 2392, Gonzales, LA 70707-2392) until May 31, 2016 at 10:00 a.m. (CST) for the Construction Project entitled:

"Lamar Dixon Soccer Complex", Project Number 2015.0001,
Recreation Number REC-13-001

This project is for the construction of a new soccer complex for Ascension Parish. The project consist of seven new soccer fields, a pre-fabricated metal shade pavilion, a new asphalt road, a pre-fabricated restroom building, and concession building. The soccer field's work will include laser grading, sand base root zone, subsurface drainage, sprigging, and irrigation. Any contractor wanting to bid on this project shall hold a Louisiana Contractors License for at least one of the following classifications: Building Construction, Highway, Street and Bridge Construction OR Electrical Construction OR Municipal and Public Works Construction category. Bids will be publicly opened and read aloud at this time. Any bid received after the closure time above stated will be returned unopened.

Copies of Specifications, Bid Documents, Contract Documents and Construction Drawings for use in preparing Bids may be obtained from Quality Engineering & Surveying, LLC (QES), 18350 Highway 42, Port Vincent, Louisiana 70726; (225) 698-1600 upon payment of Fifty Dollars ($50.00) per set made payable to "QES, LLC". Documents can be mailed to bidders with a provided shipping account number.

Bid security in the amount of five percent (5%) of the Total Bid must accompany each Bid, and shall be made payable to Ascension Parish Government.

Bids should be submitted in a sealed envelope and must be to the attention of the Ascension Parish Purchasing Department and clearly labeled on the outside of the envelope as "Bid Submittal", with the project name, "Lamar Dixon Soccer Complex, Project # 2015.0001, Recreation # REC-13-001" and Louisiana Contractor's License Number, as well as accompany all funds and documents as spelled out on the bid documents to be deemed complete.

A VOLUNTARY Pre-Bid Conference will be held on May 18, 2016 at 9:30 a.m., the Lamar Dixon Expo Center (Meet at the Gym, located just north of the site), 9039 S. St. Landry Ave, Gonzales, Louisiana 70737.

The designer's (construction cost) estimate shall be read aloud and posted upon opening of bids.

This bid can be viewed and also submitted online at http://www.centralauctionhouse.com. All Addenda, Amendments, Letters of Clarification, and Withdrawal Notices will be posted online to this site.

The Parish of Ascension reserves the right to disqualify any Bid , response to a Request for Qualifications, or Request for Proposals if it is determined that the submitting business entity is not in good standing with the Louisiana Secretary of State or is not authorized to do business in the State of Louisiana.

Public Bid Law does not permit the entity to waive informalities on the Bid Form nor (published) Advertisement for Bids.

Ascension Parish Government reserves the right to reject any and all bids for just cause.
ASCENSION PARISH GOVERNMENT
KENNY MATASSA, PARISH PRESIDENT

| | | |
|---|---|---|
| CHIEF - | Please publish | 4/28, 5/5, 5/12 |
| ADVOCATE - | Please publish | 4/28, 5/5, 5/12 |
| WEEKLY- | Please publish | 4/28, 5/5, 5/12 |

# 00100-INSTRUCTIONS TO BIDDERS

1.1 CROSS REFERENCE TO PRIMARY STATEMENTS. Definitions, requirements, and limitations affecting the bidding are contained in the various contract documents, and are not necessarily repeated in these instructions.

1.2 QUALIFICATION OF BIDDERS. Bidders may be required to submit evidence that they have a practical knowledge of the particular task bid upon, and that they have the financial resources to complete the proposed scope in entirety.

In determining the Bidder's qualifications, the following factors will be considered: contracts 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 task properly and expeditiously, (c) has the financial resources to meet all obligations incidental to the task, and (d) has appropriate technical experience.

Each Bidder may be required to show that he has completed similar work and that there are no just claims pending against such work. No Bid will be accepted from a Bidder who is engaged on any contract which would impair his ability to perform or finance his work.

1.3 LOUISIANA LICENSE REQUIREMENTS. Only Bids of Contractors licensed under LSA R.S. – 37:2150 et seq., will be considered. Licensing is supervised by the Louisiana Licensing Board for Contractors, 7434 Perkins Road, Baton Rouge, Louisiana. Contractors desiring to bid shall submit with their Bids evidence that they hold a valid license in the proper classification.

1.4 FAMILIARIZATION WITH THE WORK. Before submitting his Bid, each prospective Bidder shall familiarize himself with the scope of the task, the sites where the proposed improvements are to be performed, local labor conditions and all laws, regulations and other factors affecting performance of the work. He shall carefully correlate his observations with requirements of the Contract Documents and otherwise satisfy himself of the expense and difficulties attending performance of the Work. The submission of a Bid will constitute a representation of compliance by the Bidder. There will be no financial adjustment justification for lack of such familiarization. Additionally, evidence of having the lack of familiarization could result in contract termination or substantial financial impacts to the contractor due to liquidated damages or other variables.

1.4.1 SITE CONDITIONS. Each Bidder shall visit the sites of the Work and completely inform himself relative to construction hazards and procedure, the availability of lands, the character and quantity of surface and subsurface materials, and utilities to be encountered, the arrangement and condition of existing structures and facilities, the procedure necessary for maintenance of uninterrupted operation of existing facilities, the character of construction equipment and facilities needed for performance of the Work, and facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the Bid.

1.4.2 ACCESS TO THE SITES. The project is to be constructed within the Parish of Ascension. Contractors and Suppliers wishing to inspect the site may do so at their convenience.

1.5 INTERPRETATIONS. The Drawings have been prepared by **Quality Engineering & Surveying, LLC** 18350 Hwy. 42, Port Vincent, Louisiana, 70726, (225) 698-1600, who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents. All questions about the meaning or intent of the Specifications and Contract Documents shall be submitted to the ENGINEER in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the bidding documents and posted on the Central Auction House website. Addenda will be issued at least 72 hours, (3 working days, excluding weekends and holidays) prior to the time stated for opening bids. Questions received less than five (5) working days prior to the date for opening Bids will not be answered. Only answers furnished by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

1.6 TAXES AND PERMITS. Attention is directed to the requirements of the General Conditions and Supplementary Conditions regarding payment of taxes and obtaining permits. All taxes that are lawfully assessed against Owner or Contractor in connection with the Work shall be paid by Contractor. The bid prices shall include all such taxes and the costs of all required permits.

1.7 BID SECURITY. The amount of bid security is stated in the Invitation. The required security must be in the form of a certified or bank cashier's check or a bid bond. The bid bond must be executed by a surety meeting the requirements set forth in the General Conditions and Supplementary Conditions. Bid bond must have attached appropriate and satisfactory Power of Attorney. The bond shall also be countersigned by a person who is under contract with the Surety Company or Bond Issuer as a Licensed Agent in this State and who is residing in the State. Refer to R.S. 38:2218

The bid security shall be made payable without condition to the Owner. The bid security may be retained by and shall be forfeited to the Owner as liquidated damages if the Bid is accepted and a contract based thereon is awarded and the Bidder should fail to enter into a contract in the form prescribed, with legally responsible sureties, within fifteen (15) days after such award is made by Owner.

1.8 RETURN OF BID SECURITY. The bid security of the successful Bidder will be retained until he has executed the Agreement and furnished the required Contract Security, whereupon checks furnished as bid security will be returned; if he fails to execute and deliver the Agreement and furnish the required Contract Security within fifteen (15) days of the Notice of Award, Owner may annul the Notice of Award and the bid security of that Bidder will be forfeited. The bid security of any Bidder whom Owner believes 'to have a reasonable chance of receiving the award' may be retained by Owner until the seventh day after the executed Agreement is delivered by Owner to Contractor and the required Contract Security is furnished but not to exceed thirty (30) days after the Bid opening. Checks furnished as bid security by other Bidders will be returned within five (5) days of the Bid opening.

1.9 CONTRACT TIME. The Contract Time is an essential part of the contract and it may be necessary for each Bidder to satisfy Owner of his ability to complete the Work within the time set forth in the Bid Form. Provisions for delays, liquidated damages, and extensions of time are set forth in the General and Supplementary Conditions.

The Contractor is responsible for equipment and material delivery. A time extension to the Contract duration will not be allowed for late material or equipment delivery.

1.10 SUBCONTRACTORS AND SUPPLIERS. Within three (3) days after Bids are opened, the apparent low Bidder, and any other Bidder so requested, shall submit a list of all Subcontractors and Suppliers he expects to use in the Work and to submit manufacturer's data on selected equipment, if requested by Owner.

1.10.1 SUBCONTRACTOR QUALIFICATION. Particular consideration will be given to the qualifications of each Subcontractor proposed. An experience statement with pertinent information as to similar projects and other evidence of qualification shall be furnished for each named Subcontractor, as requested by the Owner or ENGINEER. If Owner or ENGINEER, after due investigation has reasonable objection to any proposed Subcontractor, he may, before giving Notice of Award, request the apparent low Bidder to submit an acceptable substitute without an increase in his Bid. If the apparent low Bidder declines to make substitution he will not thereby sacrifice his bid security. Any Subcontractor so listed and to whom Owner or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to the Owner and ENGINEER.

Contractor shall not be required to employ any Subcontractor against whom he has reasonable objection.

The use of Subcontractors listed by the Bidder and accepted by Owner prior to Notice of Award will be required in the performance of the Work.

1.10.2 SUPPLIERS. The list of Subcontractors shall also include the suppliers of the principal items of materials and equipment the Bidder expects to use in the Work unless such suppliers or manufacturers are named in the Bid.

1.10.3 MANUFACTURER'S DATA. The list of Subcontractors submitted as provided herein shall be accompanied by two prints or copies of data on equipment and materials to be furnished by each supplier or manufacturer. Data so submitted shall illustrate the physical characteristics of the equipment and materials to be furnished. Although the drawings and specifications submitted prior to the Notice of Award need not be complete, they must contain sufficient detail for ENGINEER to determine whether the materials and equipment will conform to the Contract Documents.

The Contract Documents will take precedence over any nonconforming data submitted.

Any Bid specifically conditioned upon furnishing equipment or materials which are not responsive to the Contract Documents will not be considered.

1.11 BIDS.

1.11.1 BID FORM. The Bid Form is bound within the Contract Documents. Bid forms must be completed in ink or typed.

Bids by corporations must be executed in the corporate name by a president or vice-president (or other corporate officer) accompanied by evidence of authority to sign. The state of incorporation shall be shown below the corporate name. Bids by partnerships must be executed in the partnership

name and signed by a partner; title and the official address of the partnership must be shown below the signature. Bids by joint ventures shall be signed by each participant in the joint venture or by an authorized agent of each participant.

The names of all persons signing must also be legibly printed below the signature. A Bid by a person who affixes to his signature the word "president", "secretary", "agent", or other designation without disclosing his principal may be held to be liable for the Bid.

All blank spaces in the Bid Form shall be filled. Bids received without all such items completed will be considered as a nonresponsive Bid.

The Bid shall contain an acknowledgement of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid Form.

No alterations in the Bids, or in the printed forms therein, by erasures, interpolations, or otherwise will be acceptable unless each such alteration is signed or initialed by the Bidder. If initialed, Owner may require the Bidder to clarify any alteration so initialed.

Unit Price items shall constitute full compensation for furnishing all labor, material, equipment, insurance, applicable taxes, overhead & profit; performing any associated contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the Unit Price items.

In addition to paper bids, electronic bids and electronic bid bonds for the project will be downloaded by the Ascension Parish Purchasing Department. Electronic bids and electronic bid bonds must be submitted through www.centralauctionhouse.com prior to the electronic bidding deadline. Beginning at 10:00 a.m. on May 31, 2016 all bids will be downloaded. No bids are accepted after 10:00 a.m. (CST) of May 31, 2016.

1.11.2 AFFIDAVIT. Bidders shall include with their Bid the attached Non-Collusion Affidavit.

1.11.3 SUBMISSION OF BIDS. The bid shall consist of the Bid Form and the other documents that are required to be submitted along with the Bid Form.

Each Bid and accompanying data shall be enclosed in a sealed opaque envelope or wrapping, addressed to:

Ascension Parish Purchasing Department
615 East Worthey Road
Gonzales, Louisiana (P.O. Box 2392, Gonzales, Louisiana 70707)

and identified on the outside with the Bidder's name, Louisiana Contractor License Number and the words "***Lamar Dixon Soccer Complex, Project # 2015.0001, Recreation # REC-13-001***".

If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "BID SUBMITTAL" on the face thereof.

Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Invitation for Bids, or the modified time and date indicated by Addendum. Bids received after the time and date for receipt of Bids will be returned unopened.

Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

Oral, telephone, or telegraph Bids are invalid and will not receive consideration.

No Bidder may submit more than one Bid. Multiple Bids under different names will not be accepted from one firm or association.

1.11.4 MODIFICATION AND WITHDRAWAL OF BIDS. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

1.11.5 BIDS TO REMAIN OPEN. All Bids shall remain open for forty-five (45) days after the day of the Bid opening. Owner shall release Bids and return bid securities as specified in Section 1.8 under "Return of Bid Security".

1.12 AWARD OF CONTRACT. Owner shall award a contract to the Bidder who, in Owner's judgment, is the lowest responsive, responsible Bidder. Owner reserves the right to reject any or all Bids, to award the contract by sections, in accordance with the Public Bid Law, and to reject nonconforming, nonresponsive, or conditional Bids.

In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternatives and unit prices if requested in the Bid Form. Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment), and may reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

The evaluation of manufacturer's data, when required to be submitted with the Bid or submitted upon request prior to the Notice of Award, shall include the following information at a minimum for consideration:

- Full name and address of manufacturer.
- Manufacturer's engineering or technical representative contact, including telephone number and email addresses.
- Manufacturers' service facilities and availability of qualified field service personnel.
- Manufacturer's contact information for the local sales information.
- The name (model, series number, etc.) of the product(s) that are to be listed.
- Manufacturer's inventory on-hand and demand capacity.
- Manufacturer's installation requirements and procedures, related engineering specifications, training, required certifications.
- Manufacturer's operating cost, maintenance upkeep schedule, life expectancy, and any warranty or other service included for the product listed.
- Experience and performance record of the manufacturer and specific products listed.
- Manufacturer's Cut sheet(s) / engineering details of products listed.

- A cost / benefit analysis compared to similar and common product from different manufacture.

If the contract is awarded, Owner shall give the apparent successful Bidder a Notice of Award within forty-five (45) days after the date of the Bid opening.

1.13 EXECUTION OF THE AGREEMENT. The Contractor shall be furnished four (4) copies of the Agreement, including insurance certificates, and other Contract Documents bound therewith. Within fifteen (15) days of Notice of Award, Contractor shall execute the Agreement, insert executed copies of the required bonds and power of attorney and submit all copies to Owner. The date of contract on the Agreement and Bond forms shall be left blank for filling in by Owner. The certification date on the power of attorney also shall be left blank for filling in by Owner.

Owner shall execute all copies, insert the date of contract on the Agreement, Bonds, and power of attorney, and return all copies to ENGINEER for review and distribution.

Once all contract documents have been executed, the Contractor shall be furnished one (4) set of original documents. The Owner shall have one (1) set of these documents recorded in the office of the Recorder of Mortgages in the jurisdiction where the work is to be performed.

1.14 COPIES OF CONTRACT DOCUMENTS. Copies of the drawings and specifications for use in preparing Bids may be obtained from:

Quality Engineering & Surveying, LLC
18350 Hwy. 42
Port Vincent, Louisiana
PHONE: 225-698-1600
FAX: 225-698-3367

The Contractor to whom a contract is awarded will be furnished three (3) working copies of the specifications and the drawings, together with all Addenda thereto by the Engineer/Architect.

# LOUISIANA UNIFORM PUBLIC WORK BID FORM

**TO:** **Ascension Parish Government**

**P.O. Box 2392**
**Gonzales, Louisiana 70707**

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

**BID FOR:** **Lamar Dixon Soccer Complex**

**Ascension Parish, Louisiana**
**Parish Project No. 2015.0001**
**Recreation No. REC-13-001**

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

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

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

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

_____Dollars ($ _____)

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

**Alternate No. 1** *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____Dollars ($ _____)

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

_____Dollars ($ _____)

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

_____Dollars ($_____)

**NAME OF BIDDER:** _____

**ADDRESS OF BIDDER:**_____

_____

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:**

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** _____ **TITLE OF AUTHORIZED SIGNATORY OF BIDDER:**

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **:** _____ **DATE:**

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

** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O) .

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

**LOUISIANA UNIFORM PUBLIC WORK BID FORM**
**UNIT PRICE FORM**

**TO:** **Ascension Parish Government**
**P.O. Box 2392**
**Gonzales, Louisiana 70707**
*(Owner to provide name and address of owner)*

**BID FOR:** **Lamar Dixon Soccer Complex**
**Ascension Parish, Louisiana**
**Parish Project No. 2015.0001**
**Recreation No. REC 13-001**
(*Owner to provide name of project and other identifying*

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

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Mobilization | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 1 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Bond & Insurance | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 2 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Project Management | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 3 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ General Conditions | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 4 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Installation and Maintenance of Erosion Control Plan | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 5 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Stripping and Grubbing | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 6 | 8 | AC. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Common Excavation from Pond | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 7 | 13000 | C.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Common Excavation from Ditches | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 8 | 7000 | C.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Seeding | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 9 | 350000 | S.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 8” Sanitary Sewer (All Depths) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 10 | 760 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Sanitary Sewer Manhole (0-6’ Depth) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 11 | 2 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Sanitary Sewer Manhole (6-8' Depth) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 12 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 6" PVC (Sewer Service) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 13 | 165 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Sanitary Sewer Cleanout | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 14 | 2 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Bore and Core into Existing SSMH "A" | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 15 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 2" PVC (Water Service Line) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 16 | 675 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Tie into Existing Water Main w/ Backflow Prevention Device | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 17 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Concrete Slab and Foundation for Pavilion and Pre-Fabricated Buildings | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 18 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Fine Grading (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 19 | 13.7 | AC. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Base Laser Grade (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 20 | 608400 | S.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Final Laser Grade (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 21 | 608400 | S.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 6" Hydraway – Flat Layout (30' Spacing) (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 22 | 19195 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 10" HDPE Perforated Colletor Pipe (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 23 | 2040 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 12” HDPE Perforated Colletor Pipe (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 24 | 1812 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 12” PVC Drain Pipe (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 25 | 230 | L.F. | | |
| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 12” Drain Inlets (Soccer Fields B-G) | | | |
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 26 | 18 | Unit | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 10” Drain Inlets (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 27 | 20 | Unit | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 6” Sand Base (w/ 4% Dakota peat mix blended on site) (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 28 | 608400 | S.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Sprigging (900 bushels per acre) (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 29 | 13.7 | AC. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Irrigation (with Booster Pump) (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 30 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Field Marking Kit (Soccer Fields B-G) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 31 | 6 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Full Depth Sawcut (Asphalt) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 32 | 14 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Removable Steel Bollards | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 33 | 4 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Fine Grading | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 34 | 6960 | S.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 10” Lime Processing (8% by volume)(Lime Included) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 35 | 6960 | S.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 10” Soil Cement Processing | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 36 | 7100 | S.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Portland Cement (10% By Volume) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 37 | 251 | Ton | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 3” Type “A” Asphaltic Pavement | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 38 | 1120 | Ton | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 6” Limestone over 7 oz. Geotextile Fabric | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 39 | 1100 | S.Y. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Traffic Control Signage | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 40 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Roadway Striping & Markings | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 41 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 30’ Double Iron Gate | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 42 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 30’ Double Chain Link Gate | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 43 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 18” RCP | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 44 | 84 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 24” RCP | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 45 | 160 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 30” RCP | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 46 | 112 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 36” RCP | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 47 | 62 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 30” Ultra Flow Pipe | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 48 | 51 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ 36” Ultra Flow Pipe | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 49 | 166 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Grate Inlet (CB-01) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 50 | 3 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Weir Inlet (CB-01) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 51 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Transformer (75kVa, 480-120/240V) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 52 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Disconnect, Fused (100A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 53 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Trenching (2’W x 3’D) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 54 | 180 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ PVC Conduit (1-3”) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 55 | 95 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Conductors (2-#1 CU XHHW) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 56 | 5 | CLF | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Vaporite Light Fixture (Model# VT4-454T5-M-DR-UNV-EHT1-WL-U) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 57 | 8 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ PVC Conduit (For Lighting) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 58 | 170 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Subfeed Breaker (60A-2P, 240V) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 59 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Trenching (2'W x 3'D) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 60 | 25 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ PVC Conduit (1-2") | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 61 | 27 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Conductors (2-#1 CU XHHW | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 62 | 2 | CLF | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Underground Quazite Box | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 63 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Trenching (2'W x 3'D) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 64 | 1140 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ PVC Conduit (1-3") | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 65 | 1197 | L.F. | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Conductors (3-#1 CU XHHW) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 66 | 66 | CLF | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Booster Pump (60A-3P, 480V) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 67 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Concession Building | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 68 | 1 | Each | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Soccer Pavilion (CRS 30'x60' Campion Model) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 69 | 1 | Lump | | |

| DESCRIPTION: | ☑ Base Bid or ❑ Alt.# ____ Restroom & Concession Building (Under Soccer Pavilion) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 70 | 1 | Lump | | |

| DESCRIPTION: | ❑Base Bid or ☑ Alt.# ____ Fine Grading (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 71 | 2.3 | A.C. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ Base Laser Grade (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 72 | 99900 | S.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ Final Laser Grade (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 73 | 99900 | S.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ 6” Hydraway – Flat Layout (30’ Spacing) (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 74 | 2910 | L.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ 10” HDPE Perforated Colletor Pipe (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 75 | 480 | L.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ 12” PVC Drain Pipe (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 76 | 40 | L.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ 10” Drain Inlets (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 77 | 4 | Unit | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ 6” Sand Base (w/ Dakota peat mix blended onsite) (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 78 | 99900 | S.F. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ Sprigging (900 bushels per acre) (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 79 | 2.3 | A.C. | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ Irrigation (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 80 | 1 | Lump | | |

| DESCRIPTION: | ❑ Base Bid or ☑ Alt.# ____ Field Marking Kit (Soccer Field A) | | | |
|---|---|---|---|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION *(Quantity times Unit Price)* |
| 81 | 1 | Each | | |

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

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2212.
HISTORICAL NOTE: Promulgated by the Office of the Governor, Division of Administration, Office of Facility Planning and Control, LR 35:1522 (August 2009).

# BIDDER INFORMATION FORM

If BIDDER is:

## An Individual

By: _____ (SEAL)
*(Signature Individual)*
Name (typed or printed): _____

Doing business as: _____

Business Address: _____

_____

Phone No.: _____ Fax No.: _____

## A Partnership

Partnership Name: _____(SEAL)

By:_____
*(Signature of General Partner)*
Name (typed or printed): _____ _____

Business Address: _____

_____

Phone No.: _____ Fax No.: _____

## A Corporation

Corporation Name: _____(SEAL)

State of Incorporation: _____

By:_____
*(Signature - attach evidence of authority to sign)*

Name (typed or printed): _____

Business Address: _____

_____

Phone No.: _____ Fax No.: _____

**(A Corporate Resolution Must Be Attached)

If BIDDER is:

## A Limited Liability Company

Company Name: _____(SEAL)

By:_____
*(Signature - attach evidence of authority to sign)*

Name (typed or printed): _____

Business Address: _____

_____

Phone No.: _____ Fax No.: _____

## A Joint Venture

Joint Venture Name: _____(SEAL)

By: _____
*(Signature of Joint Venture Partner)*

Name (typed or printed): _____

Address: _____

_____

Phone No.: _____ Fax No.: _____

Joint Venture Name: _____(SEAL)

By: _____
*(Signature of Joint Venture Partner)*

Name (typed or printed): _____

Address: _____

_____

Phone No.: _____ Fax No.: _____

Address, Phone Number, and Fax Number for receipt of official communications:

_____

_____

(Each joint venture partner must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.

# 00310-CERTIFICATE AS TO CORPORATE PRINCIPAL

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

(SEAL)

Signature: _____

Title: _____

## CERTIFICATE AS TO SURETY

I _____, certify that I am the _____of the Surety who signed the bond. I certify that we are licensed to do business in the State of Louisiana and are recognized by the U.S. Department of the Treasury as acceptable sureties.

(SEAL)

Signature: _____

Title: _____

Power of Attorney for person signing for Surety Company must be attached to bond.

* * * * *

# 00320-RESOLUTION AUTHORIZING SUBMISSION OF BID, SIGNATURE OF BID AND SIGNATURE OF CONTRACT

BE IT RESOLVED by the Board of Directors of _____, a Corporation organized and existing under the laws of the State of _____, and domiciled in the City of _____; that _____ President of the Corporation and/or _____ of the Corporation, be, and are hereby authorized and empowered to submit bids and to execute any and all contracts of whatever kind on behalf of the Corporation and to do all things necessary in the premises.

**CERTIFICATE**

I, _____, Secretary of _____ do hereby certify that the foregoing resolution is a true and exact copy unanimously adopted by the Board of Directors of said corporation at a meeting thereof legally held on the _____ day of _____ 20_____; that said resolution is duly entered into the records of said corporation; that it has not been rescinded or modified; and that it is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand and the seal of said corporation this _____ day of _____, 20_____.

_____
(Secretary)

# 00340-BIDDER'S NON-COLLUSION AFFIDAVIT
# (FURNISH WITH BID PACKAGE)

STATE OF LOUISIANA

PARISH OF _____

BEFORE ME, the undersigned authority, personally came and appeared _____ who after being by me duly sworn, deposed and said that he is the fully authorized _____ of _____(Herein after referred to as "BIDDER") the party who submitted a bid for _____ which bid was received by ASCENSION PARISH, LOUISIANA on _____ and said affiant further said:

(1) That bidder employed no person, corporation, firm, asocial, or other organization, either directly or indirectly, to secure public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration, or demolition of the public building or project or in securing the public contract were in the regular course of their duties for bidder, and

(2) That no part of the contract price received by bidder was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration, or demolition of the public building or project were in the regular course of their duties for bidder.

(3) Said bidder is genuine and the bidder has not colluded, conspired or agreed directly or indirectly with any other bidder to offer a sham or collusive bid.

(4) Said bidder has not in any manner directly or indirectly agreed with any other person to fix the bid price of affiant or any other bidder, or to fix any overhead profit or cost element of

said bid price, of that of any other bidder, or to induce any other person to refrain from bidding.

(5) Said bid is not intended to secure an unfair advantage of benefit from Ascension Parish, Louisiana or in favor of any persons interested in the proposed contract.

(6) All statement contained in said bid are true and correct.

(7) Neither affiant nor any member of his company has divulged information regarding said bid or any data relative thereto to any person, firm, or corporation.

By:_____
(Signature)

_____
(Type or Print Name)

_____
(Type or Print Title)

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____DAY OF _____,

20_____.

_____
Notary Public

# BID BOND

FOR

**ASCENSION PARISH GOVERNMENT PROJECTS**

Date: _____

KNOW ALL MEN BY THESE PRESENTS:

That_____of_____, as Principal, and_____, as Surety, are held and firmly bound unto the Ascension Parish Government (Obligee), in the full and just sum of five (5%) percent of the total amount of this proposal, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater that the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for:

_____

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

| | |
|---|---|
| _____ | _____ |
| PRINCIPAL (BIDDER) | SURETY |
| BY: _____ | BY:_____ |
| AUTHORIZED OFFICER-OWNER-PARTNER | AGENT OR ATTORNEY-IN-FACT(SEAL) |

# 00500-CONTRACT

THIS AGREEMENT, made and executed in FOUR (4) original copies on this _____day of _____ in the year 20_____ by and between:

_____Ascension Parish Government____
(hereinafter called OWNER) and

_____

(hereinafter called CONTRACTOR)

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

Article 1 WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents in conjunction with:

"***Lamar Dixon Soccer Complex"***

Article 2 ENGINEER.

The Plans have been prepared by Quality Engineering & Surveying, LLC, 18350 Hwy. 42, Port Vincent, Louisiana 70726, who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3 CONTRACT TIME.

3.1 The Work will be substantially completed within _____calendar days from the date when the Contract Time commences to run as provided in paragraph 2.3 General Conditions.

3.2 **Project Schedule.** CONTRACTOR shall submit and strictly adhere to a project construction schedule or Progress Schedule during the allocated contract time. See Sections 2.05, 2.06, and 2.07 on pages 00700-07. CONTRACTOR is aware that OWNER may have a representative at each site where Work is performed and that CONTRACTOR needs to coordinate with OWNER where Work on the CONTRACT will be performed. CONTRACTOR will coordinate with OWNER by strictly following the project construction schedule or Progress Schedule. OWNER recognizes and understands that changes in project construction schedule or Progress Schedule may become necessary during the course of the project. However, in the event of any such change, the CONTRACTOR shall notify the OWNER **in writing** of a proposed change. Said written notice shall be provided at least 12 hours prior to the revised construction activity. Said notice shall be provided by emailing notice of change to jlabbe@qesla.com.

Should the CONTRACTOR fail to timely notify the OWNER of such change, the OWNER will document the CONTRACTOR'S failure to notify of the change in work and SHALL assess stipulated damages as follows. For EACH failure to notify the OWNER of any change in the project construction schedule or Progress Schedule, then, the CONTRACTOR AGREES TO PAY $150.00 **per failure to notify OWNER.** CONTRACTOR agrees that these stipulated damages reflect the lost time, manpower, and mileage incurred by OWNER attempting to locate the CONTRACTOR where a change in schedule occurs and the required notice was not provided. CONTRACTOR further agrees that s**aid amount shall be paid** by directly reducing the amount of monthly invoices/pay applications by the amount of penalties issued. The Penalty fees shall be itemized on monthly invoices.

The CONTRACTOR shall note that abnormal weather conditions shall not be an automatic cause for time extension. The Contract Time specified above includes an allowance for normal adverse weather days. The following schedule of monthly normal adverse weather conditions is based on locally collected rainfall data and constitutes the baseline for monthly weather time evaluations. Presented are average number of days during each month that at least a tenth of an inch of rainfall was recorded over a five year evaluation period. Unless other specified, the Contractor's project work schedule shall reflect these anticipated adverse weather days in all weather-related activities.

Monthly Anticipated Adverse Weather Days*

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 7 | 5 | 7 | 7 | 9 | 10 | 8 | 6 | 3 | 4 | 8 |

*Calendar Days, based on a five-day work week.

3.3 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and the OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of General Conditions. They also recognize the delays, expenses and difficulties involved in proving in a legal arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER the amount of Five Hundred ($500.00) Dollars for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete.

Article 4 CONTRACT PRICE.

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds the sum of (subject to adjustment as provided in the Contract Documents):

Article 5 PAYMENT PROCEDURES.

CONTRATOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, once each month during construction. All progress payments will be on the basis of progress of the Work measured by the schedule of values established in paragraph 2.9 of the General Conditions (and in each case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

5.2 Pursuant to LA R.S. – 38.2248 (Public Contract Law), Owner shall withhold retainage from each progress payment until payment in due under terms and conditions governing substantial completion or final payment. Retainage shall be ten percent of the amount of work completed to date if the contract amount is up to $500,000 and five percent of the work complete to date if the contract amount is over $500,000.

**5.3 Fuel or Asphalt Adjustments.** There shall be NO adjustments for prices or costs of any fuel, diesel, asphalt, asphalt cement, or asphalt products on this project, arising out of the work on this project/contract, or arising out of this contract. Further, the CONTRACOR hereby waives any price adjustment for fuel or asphalt or the ability or right to request any price adjustment for fuel or asphalt. Particularly, the Louisiana DOTD provisions (or any such or similar provisions by any other third party) pertaining to or related to fuel or asphalt adjustments are not part of this contract, are not incorporated by reference or otherwise in this Contract, and shall not apply in any form or fashion to the contract. Any language in this Contract which implies that the CONTRACTOR may obtain an adjustment in price for fuel or asphalt is hereby to be interpreted that CONTRACTOR shall **not** receive any such adjustment. CONTRACTOR shall not assert that any language in the CONTRACT creates any vagueness or ambiguity in the CONTRACT entitling CONTRACTOR to price adjustments for fuel or asphalt. CONTRACTOR hereby waives any right or ability to request any price adjustment for fuel or asphalt and CONTRACTOR shall **not** submit any request for any change in price for fuel or asphalt adjustments to the OWNER in any form.

5.4 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions and Supplementary Conditions SC-9. OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER.

Article 6 CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

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

6.2 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies, or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

6.3 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.

6.4 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7 CONTRACT DOCUMENTS.

The Contract Documents which comprise the contract between OWNER and CONTRACTOR, attached hereto and made a part hereof, consist of the documents listed in Table of Contents, and the documents identified below.

a. Bid
b. Bid Bond
c. Agreement
d. Payment Bond
e. Performance Bond
f. Notice of Award
g. Notice to Proceed
h. Drawings prepared by Quality Engineering & Surveying, LLC (Lamar Dixon Soccer Complex & April 2016)
i. Specifications prepared by Quality Engineering & Surveying, LLC (Lamar Dixon Soccer Complex & April 2016)

Article 8 MISCELLANEOUS

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

8.2 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representative to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Contract the day and year first above written.

| OWNER | CONTRACTOR |
|---|---|
| Ascension Parish, Louisiana | _____ |
| 72-6000096 | _____ |
| Federal Identification No. | Federal Identification No. |
| _____ | _____ |
| By Kenny Matassa | By_____ |
| Title Parish President | Title_____ |
| Attest_____ | Attest_____ |
| Address for giving notices | Address for giving notices |
| P.O. Box 1659, 615 E. Worthey Road | _____ |
| Gonzales, Louisiana 70707-1659 | _____ |
| | License No._____ |

# 00510-PERFORMANCE BOND

_____

as Principal, and _____

a surety company or companies authorized to do business in Louisiana, as Surety, are bound, in solido, unto

_____ and

unto all subcontractors, workmen, and furnishers of materials and equipment, jointly in the sum of

_____

_____Dollars($_____).

Payable in lawful money of the United States, and to this bond do obligate their heirs, successors and assigns. In the case of co-sureties, co-sureties assume an obligation in the sum of

_____

_____Dollars($_____).

For_____and

_____

_____Dollars($_____).

The consideration for this bond is such, that if the Principal shall perform this contract, made and entered into on the _____ day of _____, 20___, To construct the project entitled: "***Lamar Dixon Soccer Complex***", which consists of the construction of a new soccer complex for Ascension Parish. The project consists of seven new soccer fields, a pre-fabricated metal shade pavilion, a new asphalt road, a pre-fabricated restroom building, and concession building. The soccer field's work will include laser grading, sand base root zone, subsurface drainage, sprigging, and irrigation. Plan, Design, and Development of a recreational complex that will include indoor and outdoor activities (camping, fishing, soccer, baseball, softball, archery areas, water and dog parks, etc.

It is agreed by the parties that this bond is given in accordance with Louisiana Revised Statutes of 1950, Title 38, Chapter 10.

In faith whereof, we have subscribed this obligation at _____, Louisiana.

Witness our hands and seals, this _____ day of _____, 20_____.
Witnesses

_____ _____
Principal

_____ By_____

_____
Typed or Printed Name

_____ _____
First Surety

_____ By_____
Attorney-in-Fact

_____
Typed or Printed Name

_____ _____
Second Surety

_____ By_____
Attorney-in-Fact

_____
Typed or Printed Name

I certify that I am as of the date of this bond a licensed Resident Agent of Louisiana in good standing with the Louisiana Insurance Commission and authorized to countersign this bond on behalf of the Surety of Sureties.

| First Surety | Second Surety |
| --- | --- |
| By_____ | By_____ |
| _____ | _____ |
| Typed or Printed Name | Typed or Printed Name |
| _____ | _____ |
| Typed or Printed Name | Typed or Printed Name |
| _____ | _____ |
| Address | Address |

# 00510-PAYMENT BOND

_____

as Principal, and _____

a surety company or companies authorized to do business in Louisiana, as Surety, are bound, in solido, unto

_____ and

unto all subcontractors, workmen, and furnishers of materials and equipment, jointly in the sum of

_____

_____Dollars($_____).

Payable in lawful money of the United States, and to this bond do obligate their heirs, successors and assigns. In the case of co-sureties, co-sureties assume an obligation in the sum of

_____

_____Dollars($_____).

For_____and

_____

_____Dollars($_____).

The consideration for this bond is such, that if the Principal shall perform this contract, made and entered into on the _____ day of _____, 20_____, To construct the project entitled: "***Lamar Dixon Soccer Field***", which consists of the construction of a new soccer complex for Ascension Parish. The project consists of seven new soccer fields, a pre-fabricated metal shade pavilion, a new asphalt road, a pre-fabricated restroom building, and concession building. The soccer field's work will include laser grading, sand base root zone, subsurface drainage, sprigging, and irrigation. Plans, Design, and Development of a recreational complex that will include indoor and outdoor activities (camping, fishing, soccer, baseball, softball, archery areas, water and dog parks, etc.)

It is agreed by the parties that this bond is given in accordance with Louisiana Revised Statutes of 1950, Title 38, Chapter 10.

Witness our hands and seals, this _____ day of _____, 20_____.

Witnesses

_____ _____

Principal

_____ By_____

_____

Typed or Printed Name

_____ _____

First Surety

_____ By_____

Attorney-in-Fact

_____

Typed or Printed Name

_____ _____

Second Surety

_____ By_____

Attorney-in-Fact

_____

Typed or Printed Name

I certify that I am as of the date of this bond a licensed Resident Agent of Louisiana in good standing with the Louisiana Insurance Commission and authorized to countersign this bond on behalf of the Surety of Sureties.

| First Surety | Second Surety |
| --- | --- |
| By_____ | By_____ |
| _____ | _____ |
| Typed or Printed Name | Typed or Printed Name |
| _____ | _____ |
| Typed or Printed Name | Typed or Printed Name |
| _____ | _____ |
| Address | Address |

# 00550 - HOLD HARMLESS AGREEMENT

OWNER: **PARISH OF ASCENSION**
**P.O. BOX 1659**
**GONZALES, LOUISIANA 70707-1659**

ENGINEER: QUALITY ENGINEERING & SURVEYING, LLC
18350 HWY. 42
PORT VINCENT, LOUISIANA 70726

The Contractor shall indemnify and hold harmless the Owner and the Engineers and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense: (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom: and (b) is caused in whole or in part by any negligent act or omission of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not is caused in part by a party indemnified hereunder.

In any and all claims against the Owner or the Engineers, or any of their agents or employees by any employee of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may liable, the indemnification obligation under this Agreement shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under Workmen's Compensation acts, disability benefit acts or other employee benefit acts.

The obligations of the Contractor under this Agreement shall not extend to the liability of the Engineers, their agents or employees arising out of. (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications: or (2) the giving of or the failure to give directions or instructions by the Engineers, their agents or employees provided such giving or failure to give its primary cause of the injury or damage.

CONTRACTOR: _____

By: _____

WITNESSES:

_____

_____

# 00600 - NOTICE OF AWARD

Date of Award: _____

TO: _____

ADDRESS: _____
_____

PROJECT: "***Lamar Dixon Soccer Complex***"

Owner's Contract No.: 2015.0001 Recreation No: REC-13-001
Engineer's Project No.: 14-007-01
Contract For: Lamar Dixon Soccer Complex

You are notified that your Bid dated _____2016 for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a Contract for:

"***Lamar Dixon Soccer Complex"***, which consists of the construction of a new soccer complex for Ascension Parish. The project consists of seven new soccer fields, a pre-fabricated metal shade pavilion, a new asphalt road, a pre-fabricated restroom building, and concession building. The soccer field's work will include laser grading, sand base root zone, subsurface drainage, sprigging, and irrigation. Plans, Design, and Development of a recreational complex that will include indoor and outdoor activities (camping, fishing, soccer, baseball, softball, archery areas, water and dog parks, etc.)

The Contract Price of your Contract is: $_____

_____

_____Copies of each of the proposed Contracts accompany this Notice of Award.
_____Sets of the complete Contract Documents, including Drawings, will be delivered separate During the Pre-Construction Conference or otherwise made available to you immediately.

You must comply with the following conditions precedent within _____(__) days of the date of this Notice of Award, this is by: _____

1. You must deliver to the Owner 4 fully executed counterparts of the proposed Contract, including the Agreement. Each copy of the Contract must bear your signature on all signatory lines within the Agreement

2. You must deliver with the executed Agreement, the Contract Security (Bonds) as specified in the Instructions to Bidders (section 1.8) and General Conditions (section 5.01).

3. You must deliver with the executed Agreement, Certificate of Insurance including certificates verifying additional insureds as required in General Conditions (section 5.03)

# 00600 - NOTICE OF AWARD (Continued)

Failure to comply with these conditions within the time specified will entitle the Owner to consider your bid in default, to annul this Notice of Award and to declare you Bid Security forfeited.

Within then _____ (___) days after you comply with the above conditions, the Owner will return to you one (1) fully signed counterpart of the Agreement with the Contract Documents attached.

PARISH OF ASCENSION _____
(Owner)

By: _____
(Authorized Signature)

_____
(Title)

**ACCEPTANCE OF AWARD**

_____
(Contractor)

By: _____
(Authorized Signature)

_____
(Title)

_____
(Date)

# 00610 - NOTICE TO PROCEED

TO: _____

ADDRESS: _____

_____

PROJECT: _____

Owner's Contract No.: 2015.0001 Recreation No.: REC-13-001
Engineer's Project No.: 14-007-01

Contract For: "Lamar Dixon Soccer Complex"
which consists of the construction of a new soccer complex for Ascension Parish. The project consists of seven new soccer fields, a pre-fabricated metal shade pavilion, a new asphalt road, a pre-fabricated restroom building, and concession building. The soccer field's work will include laser grading, sand base root zone, subsurface drainage, sprigging, and irrigation. Plans, Design, and Development of a recreational complex that will include indoor and outdoor activities (camping, fishing, soccer, baseball, softball, archery areas, water and dog parks, etc.)

You are notified that the Contract Times under the above Contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement, the dates of Substantial Completion and completion and readiness for Final Payment are:
_____ and _____

Liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER the amount of Five Hundred ($500.00) Dollars for each day that expires after the one hundred-eighty (180) days until the Work is substantially completed.

**Before you may start any Work at the site, Article 2.01 of the General Conditions provides that you and the Owner must each deliver to the other (with copies to the Engineer) and other identified additional insurers) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.**

Also, before you may start any Work at the site you must notify Owner/Engineer of Start Date.

PARISH OF ASCENSION
(Owner)

By: _____
(Authorized Signature)

_____
(Title)

**ACKNOWLEDGED:**

_____
(Contractor)

By: _____
(Authorized Signature)

_____
(Title)

_____
(Date)

# Contractor's Application for Payment No. _____

| | | |
|---|---|---|
| | Application Period: | Application Date: |
| To (Owner): | From (Contractor): | Via (Engineer): |
| Project: | Contract: | |
| Owner's Contract No.: | Contractor's Project No.: | Engineer's Project No.: |

| Approved Change Orders | | |
|---|---|---|
| Number | Additions | Deductions |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| TOTALS | | |
| NET CHANGE BY CHANGE ORDERS | | |

| | |
|---|---|
| **1. ORIGINAL CONTRACT PRICE……** | $ - |
| **2. Net change by Change Orders……** | $ - |
| **3. Current Contract Price (Line 1 + 2)……** | $ - |
| **4. TOTAL COMPLETED AND STORED TO DATE** | $ - |
| **(Column F on Progress Estimate)……** | $ - |
| **5. RETAINAGE:** | |
| **a. X _____ Work Completed……** | $ - |
| **b. X _____ Stored Material……** | $ - |
| **c. Total Retainage (Line 5a + Line 5b)……** | $ - |
| **6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)……** | $ - |
| **7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)……** | $ - |
| **8. AMOUNT DUE THIS APPLICATION……** | $ - |
| **9. BALANCE TO FINISH, PLUS RETAINAGE** | |
| **(Column G on Progress Estimate + Line 5 above)……** | $ - |

Contractor's Certification

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of WORK done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances): and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By: Date:

Payment of: $ -

(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ _____

(Engineer) (Date)

Payment of: $ -

(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____

(Owner) (Date)

Approved by: _____ _____

Funding Agency (if applicable) (Date)

Endorsed by the Construction Specifications Institue.


© 2007 National Society of Professional Engineers for EJCDC. All rights reserved.

# 00640 - CHANGE ORDER

CHANGE ORDER NO. _____

OWNER ASCENSION PARISH GOVERNMENT DATE _____

NAME OF PROJECT: "***Lamar Dixon Soccer Complex***"
ENGINEER: Quality Engineering & Surveying, LLC

CONTRACTOR:_____ CONTRACT DATE _____

---

It is hereby mutually agreed that when this change order has been signed by the contracting parties, the following described changes in the work required by the Contract shall be executed by the Contractor without changing the terms of the Contract except as herein stipulated and agreed.

---

**SCOPE OF CHANGES:**

**JUSTIFICATION FOR CHANGES:**

---

CONTRACTOR'S PROPOSAL FOR THE ABOVE DESCRIBED CHANGES
I/We hereby agree to the modification of the Contract as described above and agree to furnish all materials, equipment and labor necessary to perform all work in connection therewith in accordance with the requirements for similar work in the existing Contract except as otherwise stipulated herein, for the following consideration.

---

**CONTRACT Amount –Add to –or- Deduct from- the Contract amount the sum of $_____**

**Time for Completion –Add to –or- Deduct from- the Contract Time: _____Days.**

The New Date for Completion is _____

CONTRACTOR:_____

SIGNATURE:_____ DATE_____

---

RECOMMENDED BY: _____

BY:_____ DATE_____

---

APPROVED BY:

PUBLIC WORKS BY:_____ DATE_____

# 00640 - CHANGE ORDER (Continued)

PARISH PRESIDENT BY:_____ DATE_____

---

**STATEMENT OF CONTRACT AMOUNT**

ORIGINAL CONTRACT AMOUNT:…… $_____
Previous Additions…….. $_____
Previous Deductions……. $_____
Net Amount Prior to this Change…… $_____
Amount of This Change ____Add ___Deduct... $_____
CONTRACT AMOUNT TO DATE……. $_____

# 00650 - WORK CHANGE DIRECTIVE

NO.

PROJECT: "***Lamar Dixon Soccer Complex***"

DATE OF ISSUANCE: _____ EFFECTIVE DATE: _____

OWNER: PARISH OF ASCENSION OWNER'S CONTRACT NO.: 2015.0001
RECREATION NO.: REC-13-001

ENGINEER: QUALITY ENGINEERING & SURVEYING, LLC ENGINEER'S PROJECT NO.: 14-007-01

CONTRACTOR:_____

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Work Change Directive:

Attachments (List documents supporting changes):

If a claim is made that the above change(s) have affected the Contract Price or Contract Times, any claim for a change order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:
_____Unit Prices
_____Lump Sum
_____Other: _____

Estimated increase (decrease) in Contract Price:
_____$_____-____

If the change involves an increase, the estimated amount is not to be exceeded without further authorization. authorization.

Method of determining change in Contract Times
_____Contractor's Records
_____Engineer's Records
_____Other: _____

Estimated increase (decrease) in Contract Times:
Substantial Completion: _____Days
Ready for Final Payment: _____Days

If the change involves an increase, the estimated are not to be exceeded without further

RECOMMENDED: By: _____ Date: _____
*Engineer (Authorized Signature)*

APPROVED: By: _____ Date: _____
*Owner (Authorized Signature)*

ACCEPTED: By: _____ Date: _____
*Contractor (Authorized Signature)*

# 00660 - CERTIFICATE OF SUBSTANTIAL COMPLETION

| | |
|---|---|
| Project: *"Lamar Dixon Soccer Complex"* | |
| Owner: | Owner's Contract No.: REC-13-001<br>Recreation No.: REC-13-001 |
| Contract: | Engineer's Project No.: 14-007-01 |

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

☐All Work under the Contract Documents: ☐The following specified portions of the Work:

_____

_____

_____

_____

_____
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

☐Amended Responsibilities ☐Not Amended

Owner's Amended Responsibilities:

_____

_____

_____

Contractor's Amended Responsibilities:

_____

_____

_____

# 00660 - CERTIFICATE OF SUBSTANTIAL COMPLETION (Continued)

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

_____

_____

_____

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

| | |
|---|---|
| Executed by Engineer | Date |
| Accepted by Contractor | Date |
| Accepted by Owner | Date |

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

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
*A Practice Division of the*
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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

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

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

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

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish

materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to

undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

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

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

   a. does not conform to the Contract Documents; or

   b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

   c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

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

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

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

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

**ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report

it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

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

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

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

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing

a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

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

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

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

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither

Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

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

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

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

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or

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

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving

rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor’s liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor’s Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor’s performance of the Work and Contractor’s other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers’ compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

    a. Such insurance shall remain in effect for two years after final payment.

    b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

    1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

    2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

    3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

    4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

    5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and

damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is

reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

## ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

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

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

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

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

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

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

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or

the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

   1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

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

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to

the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

    a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

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

    c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

    d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

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

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

**ARTICLE 7 – OTHER WORK AT THE SITE**

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

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

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

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

**ARTICLE 8 – OWNER'S RESPONSIBILITIES**

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

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

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

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

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

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to

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

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

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

9.10 *Compliance with Safety Program*

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

## ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

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

10.04 *Notification to Surety*

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

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to

substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

### 11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of

the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

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

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

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

B. *Cash Allowances:*

1. Contractor agrees that:

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

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. Unit Price items shall constitute full compensation for furnishing all labor, material, equipment, insurance, applicable taxes, overhead & profit; performing any associated contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the Unit Price Items.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

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

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

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

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

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or

acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

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

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid

Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work, or

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

    d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

    d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

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

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any

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

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

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

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

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially

complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor

may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to

Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

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

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

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

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

**ARTICLE 16 – DISPUTE RESOLUTION**

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

**ARTICLE 17 – MISCELLANEOUS**

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

# 0800 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

A. Engineer/ Architect shall furnish to Contractor up to 3 printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

SC-2.03 Delete Paragraph 2.03.A in its entirety and insert the following in its place:

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed.

SC 5.01 Add the following language after the last sentence of paragraph 5.01 A:

"All bonds must be countersigned by a resident agent of the State in which the Project is done."

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

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

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

| | |
|---|---|
| a. State: | Statutory |
| b. Applicable Federal (e.g., Longshoreman's): | Statutory |
| c. Employer's Liability: | $100,000 each occurrence |

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and

eliminate the exclusion with respect to property under the care, custody and control of Contractor:

a. General Aggregate $1,000,000

b. Products - Completed Operations Aggregate $300,000

c. Personal and Advertising Injury $300,000

d. Each Occurrence (Bodily Injury and Property Damage) $500,000

e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.

f. Excess or Umbrella Liability
General Aggregate $5,000,000
Each Occurrence $5,000,000

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

a. Bodily Injury:
Each person $300,000
Each Accident $500,000

b. Property Damage:
Each Accident $300,000

or

a. Combined Single Limit of $1,000,000

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

a. Bodily Injury:
Each person $1,000,000
Each Accident $1,000,000

b. Property Damage:
Each Accident $250,000
Aggregate $1,000,000

SC 5.06.A. Delete Paragraph 5.06.A in its entirety and insert the following in its place:

A. Contractor shall purchase and maintain property insurance upon the Work at the Sites in the amount of the full replacement cost thereof. Contractor shall be responsible for any deductible or self-insured retention. This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, Engineer, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by these Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup;

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued; and

8. comply with the requirements of Paragraph 5.06.C of the General Conditions.

SC-5.06.B Change the first word “Owner” to “Contractor” in paragraph 5.06.B of the General Conditions. The Contractor shall be responsible for this coverage.

SC 6.06 Add a new paragraph immediately after Paragraph 6.06.G:

H. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

SC-9.03 Add the following new paragraphs immediately after Paragraph 9.03.A:

B. The Resident Project Representative (RPR) will be Owner's employee or agent at the Site, will act as directed by and under the supervi¬sion of Engineer, and will confer with Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall be through or with the full knowledge and approval of Contractor. The RPR shall:

1. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.

2. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

3. Liaison:

a. Serve as Engineer’s liaison with Contractor, working principally through Contractor’s authorized representative, assist in providing information regarding the intent of the Contract Documents.

b. Assist Engineer in serving as liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

4. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

5. Shop Drawings and Samples:

a. Record date of receipt of Samples and approved Shop Drawings.

b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

6. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

7. Review of Work and Rejection of Defective Work:

a. Conduct onsite observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

8. Inspections, Tests, and System Startups:

a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

9. Records:

a. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

b. Maintain records for use in preparing Project documentation.

10. Reports:

a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition.

11. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

12. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and

furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

13. Completion:

    a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.

    b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final list of items to be completed and deficiencies to be remedied.

    c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.

5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

SC 11.03.D Delete Paragraph 11.03.D in its entirety and insert the following in its place:

D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the Bid price of a particular item of Unit Price Work amounts to 25% percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 10% percent from the estimated quantity of such item indicated in the Agreement; and

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

3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-12.01.C Delete the semicolon at the end of GC 12.01.C.2.c, and add the following language:

, provided, however, that on any subcontracted work the total maximum fee to be paid by Owner under this subparagraph shall be no greater than 27 percent of the costs incurred by the Subcontractor who actually performs the work;

SC-Article 16 Delete Article 16 of the General Conditions in its entirety and replace with the following:

"16.01 Any and all disputes that arise out of the performance of this Contract shall be litigated in the 23rd Judicial District Court in and for the Parish of Ascension. Any reference to arbitration in any Contract Documents is hereby expressly waived and deleted. "

# Parish of Ascension

**TOMMY MARTINEZ**
ASCENSION PARISH PRESIDENT

## *MEMORANDUM*

Date: July 29, 2015

To: Honorable Tommy Martinez, Parish President
Honorable Teri Casso, Councilwoman District 8**
Honorable Oliver Joseph, Councilman District 1
Honorable Kent Schexnayder, Councilman District 2
Honorable Travis Turner, Councilman District 3
Honorable Daniel Satterlee, Councilman District 4
Honorable Dempsey Lambert, Councilman District 5
Honorable Randy Clouatre, Councilman District 6
Honorable Chris Loar, Councilman District 7
Honorable Todd Lambert, Councilman District 9
Honorable Bryan Melancon, Councilman District 10
Honorable Benny Johnson, Councilman District 11

APPROVED FINANCE COMMITTEE
8 / 3 / 15
APPROVED PARISH COUNCIL
/ /

From: Joan Shivers, Purchasing Director

***Re:*** **Lamar Dixon Soccer Complex (Tax Exemption Request)**

---

The Ascension Parish Engineering Department has submitted a request to solicit the following project(s) with a designation of **"tax exempt"** and to authorize the Parish President to enter into any applicable agreement or contract for this purpose.

1. **Lamar Dixon Soccer Complex**
   - *Phase 1 – Roadway*
2. **Lamar Dixon Soccer Complex**
   - *Phase 2 – Pavilion*
3. **Lamar Dixon Soccer Complex**
   - *Phase 3 – Soccer Fields*

Tommy Martinez
Ascension Parish Government

7-29-15
Date

R-1020I(11/04)

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

## General Information

**Purpose of the R-1020 Form:** Agencies and instrumentalities of federal or Louisiana state or local government may designate a construction contractor as its authorized agent for the purpose of purchasing construction materials, leasing and renting tangible personal property, and purchasing taxable services. Form R-1020 serves as the documentation by which the government entity and contractor document the agency relationship to vendors of materials and services. It also serves as documentation that the contractor's purchases are sales tax exempt, and therefore serves as an exemption certificate, which the vendor must retain on file to support the deduction he will claim on his sales tax return. Effective 11-1-2004, the R-1032 exemption certificate will no longer be necessary.

**Use of the R-1020 Form:** The form must be signed by both parties, contractor and governmental entity. After signature, both the contractor/agent and the governmental entity must keep an original copy of the form on file, along with other documents that pertain to the construction project. (Effective 11-1-2004) Do not send a copy of the R-1020 form to the Louisiana Department of Revenue. Retain your copy of the original certificate on file. The contractor/agent must reproduce the original copy as needed to attach a copy to each purchase order for materials for the project. The reproduced copy will serve as the exemption certificate that will document the exempt sale of materials to the contractor/agent.

**Subcontractors.** A designated contractor may not re-designate his subcontractors as authorized agents for the governmental entity. Each subcontractor must obtain its own designation from the governmental entity.

**Title to Property:** Any materials purchased by the agent through the use of this certificate immediately become the property of the governmental entity upon delivery to the contractor/agent.

**Restrictions as to Vendors:** The governmental entity may choose to restrict the agent/contractor to making purchases from a pre-selected list of vendors and providers of services. This restriction, if applicable, must be incorporated into a contractual agreement between the governmental entity and the designated agent. If there are no vendor restrictions, the contractor/agent may use the R-1020 Exemption Certificate to make sales tax exempt purchases from any vendor.

R-1020 (4/12)

LDR
Contributing to a better quality of life

# Designation of Construction Contractor as Agent of a Governmental Entity Sales Tax Exemption Certificate

_____, an agency of the United
Legal Name of Governmental Entity

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

| Name of Contractor | | |
|---|---|---|
| Address | | |
| City | State | ZIP |

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

| Construction Project | Contract Number |
|---|---|
| | |

This designation and acceptance of agency is effective for the period

| Beginning Date *(mm/dd/yyyy)* | End Date *(mm/dd/yyyy)* |
|---|---|
| | |

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

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

| Designation of Agency | | |
|---|---|---|
| Signature of Authorized Designator | | Date *(mm/dd/yyyy)* |
| Name of Authorized Designator | | |
| Name of Governmental Entity | | |
| Address | | |
| City | State | ZIP |

| Acceptance of Agency | | |
|---|---|---|
| Signature of Contractor or Subcontractor Authorized Acceptor | | Date *(mm/dd/yyyy)* |
| Name of Contractor's or Subcontractor's Acceptor | | |
| Name of Contractor | | |
| Address | | |
| City | State | ZIP |

This designation of agency form, when properly executed by both the contractor and the governmental entity, shall serve as evidence of the sales tax exempt status that has been conferred onto the contractor. No other exemption certificate form is necessary to claim exemption from sales taxes. The agency agreement evidenced by this sales tax exemption certificate must be implemented at the time of contract execution with the governmental entity. The contract between the governmental entity and his agent must contain provisions to authenticate the conferment of agency.

# Finance Committee Agenda Item Requests

Finance Department

Contact: Ashley Barnes
(225) 450-1111; abarnes@apgov.us

Date of Meeting: **August 3, 2015**

Requested by: **Joan Shivers**

Agenda Item – Suggested description to be used on agenda:
**Lamar Dixon Soccer Complex – Phase 1, 2 & 3**

Brief synopsis of agenda item request:
**Designation of Construction Contractor as Agent of a Governmental Entity Sales Tax Exemption**

Person(s) who will be presenting item at meeting and their title:
**Darilyn Berthelot, Buyer**

Attachments: Items will not be confirmed for agenda until attachments are received by the Finance Department by the end of the day the Tuesday prior to the Monday Finance meeting. A copy of any Power Point presentations that will be used must be given to the Finance Department at least 24 hours prior to meeting.

**Section below to be filled out by the Finance Department**

Budget Information:

- Funds are provided in Budget _____
- Provided in Fund (Name & Number)_____
- Funds are not provided in Budget _____

Approved by Finance Chair: _____

Finance Committee Approved: _____

# TRANSMITTAL

# GULF SOUTH

**Gulf South Engineering and Testing, Inc.**

**To:** Ascension Parish DPW
42077 Church Point Rd.
Gonzales, LA. 70737

**Attention:** Mr. Michael Terry

**Date**: 11-23-15
**Job No.**: 15-461
**Project**: Lamar Dixon Soccer Field Borrow
**From:** Eric A. Paille, C.E.T.

E.A.P.

| COPIES | DESCRIPTION |
|---|---|
| 1 | Laboratory Data |
| | Soil Cement Determination |
| | |
| | |
| | |
| | |
| | |

**THESE ARE TRANSMITTED:**

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

**REMARKS:** mterry@apgov.us Michael Terry

GULF SOUTH ENGINEERING AND TESTING, INC.

# Soil Cement Compressive Strengths

Lamar Dixon Soccer Field Borrow (15-461)

| *Sample ID* | *Date Molded* | *Date Tested* | *Age(Days)* | *Represents* | *Actual PSI* | *Requirement* |
|---|---|---|---|---|---|---|
| 7% | 11-17-15 | 11-24-15 | 7 | Road Base | 232 | 250 PSI |
| 9% | 11-17-15 | 11-24-15 | 7 | Road Base | 255 | 250 PSI |
| 11% | 11-17-15 | 11-24-15 | 7 | Road Base | 279 | 250 PSI |

Eric A. Paille

Project Manager

# SECTION 01 10 00 - SUMMARY

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

### 1.2 PROJECT INFORMATION

A. Project Identification: Lamar Dixon Soccer Complex

1. Project Location: _____

B. Owner: Ascension Parish

1. Owner's Representative: Michael Enlow
42077 Churchpoint Rd.
Gonzales, LA 70737

C. Engineer / Engineer: **QUALITY ENGINEERING & SURVEYING, LLC**
18350 Highway 42
Port Vincent, LA 70726
P (225) 698-1600
F (225) 698-3367

### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Type of Contract.

1. Project will be constructed under a single prime contract.

    a. Lump Sum.

## 1.4 ACCESS TO SITE

A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet beyond building perimeter; 10 feet beyond surface walkways, patios, surface parking, and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.

2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather tight condition throughout construction period. Repair damage caused by construction operations.

## 1.5 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Engineer will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.

2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.

3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.

4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

## 1.6 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours, Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.

2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.

2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

## 1.7 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard.

3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

## END OF SECTION 01 10 00

# SECTION 01 23 00 - ALTERNATES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

### 1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.

2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

### 1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1 includes:

1. All field construction for Field “A” as indicated on the construction plans.

**END OF SECTION 012300**

# SECTION 01 25 00 - SUBSTITUTION PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions. B. Related Requirements:

1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

### 1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

### 1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project.

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Engineer will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.

b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

## 1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## PART 2 – PRODUCTS

## 2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Engineer will consider Contractor’s request for substitution when the following conditions are satisfied:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Requested substitution provides sustainable design characteristics that specified product provided.

c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.

e. Requested substitution is compatible with other portions of the Work.

f. Requested substitution has been coordinated with other portions of the Work.

g. Requested substitution provides specified warranty.

h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

## PART 3 - EXECUTION (Not Used)

**END OF SECTION 01 25 00**

# SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

### 1.2 MINOR CHANGES IN THE WORK

A. Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Engineer's Supplemental Instructions."

### 1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified in Proposal Request or 7 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require

modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

7. Work Change Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

## 1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

## 1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Engineer may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 26 00**

# SECTION 01 29 00 - PAYMENT PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

### 1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.

b. Submittal schedule.

c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Engineer at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments; provide subschedules showing values coordinated with each phase of payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.

b. Name of Engineer.

c. Engineer's project number.

d. Contractor's name and address.

e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.

   a. Include separate line items under Contractor and principal subcontracts for project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

   a. Temporary facilities and other major cost items that are not direct cost of actual work-in- place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

## 1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: Submit Application for Payment to Engineer by the 4th day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required. information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

2. When an application shows completion of an item, submit conditional final or full waivers.

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.

2. Schedule of values.

3. Contractor's construction schedule (preliminary if not final).

4. Schedule of unit prices.

5. Submittal schedule (preliminary if not final).

6. List of Contractor's staff assignments.

7. List of Contractor's principal consultants.

8. Copies of building permits.

9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.

10. Initial progress report.

11. Report of preconstruction conference.

12. Certificates of insurance and insurance policies.

H. Application for Payment at Substantial Completion: After Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.

3. Updated final statement, accounting for final changes to the Contract Sum.

4. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."

5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."

6. AIA Document G707-1994, "Consent of Surety to Final Payment."

7. Evidence that claims have been settled.

8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

9. Final liquidated damages settlement statement.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 29 00**

# SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination drawings.

2. Requests for Information (RFIs).

3. Project Web site.

4. Project meetings.

B. Related Requirements:

1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

### 1.2 DEFINITIONS

A. RFI: Request from Owner, Engineer, or Contractor seeking information required by or clarifications of the Contract Documents.

### 1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

### 1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

## 1.5 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Indicate functional and spatial relationships of components of Architectural, structural, civil, mechanical, and electrical systems.

b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Engineer indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show Architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.

2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.

3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.

6. Review: Engineer will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

## 1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Engineer will return RFIs submitted to Engineer by other entities controlled by Contractor with no response.

2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.

2. Project number.

3. Date.

4. Name of Contractor.

5. Name of Engineer.

6. RFI number, numbered sequentially.

7. RFI subject.

8. Specification Section number and title and related paragraphs, as appropriate.

9. Drawing number and detail references, as appropriate.

10. Field dimensions and conditions, as appropriate.

11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.

12. Contractor's signature.

13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: AIA Document G716 or Software-generated form with substantially the same content as indicated above, acceptable to Engineer.

D. Engineer's Action: Engineer will review each RFI, determine action required, and respond. Allow seven working days for Engineer's response for each RFI. RFIs received by Engineer after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.

b. Requests for approval of substitutions.

c. Requests for coordination information already indicated in the Contract Documents.

d. Requests for adjustments in the Contract Time or the Contract Sum.

e. Requests for interpretation of Engineer's actions on submittals.

f. Incomplete RFIs or inaccurately prepared RFIs.

2. Engineer's action may include a request for additional information, in which case Engineer's time for response will date from time of receipt of additional information.

3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use CSI Log Form 13.2B or software log with not less than the following:

1. Project name.

2. Name and address of Contractor.

3. Name and address of Engineer.

4. RFI number including RFIs that were dropped and not submitted.

5. RFI description.

6. Date the RFI was submitted.

7. Date Engineer's response was received.

F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

## 1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.

B. Preconstruction Conference: Engineer will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.

b. Phasing.

c. Critical work sequencing and long-lead items.

d. Designation of key personnel and their duties.

e. Procedures for processing field decisions and Change Orders.

f. Procedures for RFIs.

g. Procedures for testing and inspecting.

h. Procedures for processing Applications for Payment.

i. Distribution of the Contract Documents.

j. Submittal procedures.

k. Preparation of record documents.

l. Use of the premises and existing building.

m. Work restrictions.

n. Working hours.

o. Owner's occupancy requirements.

p. Responsibility for temporary facilities and controls.

q. Procedures for moisture and mold control.

r. Procedures for disruptions and shutdowns.

s. Construction waste management and recycling.

t. Parking availability.

u. Office, work, and storage areas.

v. Equipment deliveries and priorities.

w. First aid.

x. Security.

y. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each

construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.

    b. Options.

    c. Related RFIs.

    d. Related Change Orders.

    e. Purchases.

    f. Deliveries.

    g. Submittals.

    h. Review of mockups.

    i. Possible conflicts.

    j. Compatibility problems.

    k. Time schedules.

    l. Weather limitations.

    m. Manufacturer's written instructions.

    n. Warranty requirements.

    o. Compatibility of materials.

    p. Acceptability of substrates.

    q. Temporary facilities and controls.

    r. Space and access limitations.

    s. Regulations of authorities having jurisdiction.

t. Testing and inspecting requirements.

u. Installation procedures.

v. Coordination with other work.

w. Required performance results.

x. Protection of adjacent work.

y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals, and as needed.

1. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1. Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1. Interface requirements.

2. Sequence of operations.
3. Status of submittals.
4. Deliveries.
5. Off-site fabrication.
6. Access.
7. Site utilization.
8. Temporary facilities and controls.
9. Progress cleaning.
10. Quality and work standards.
11. Status of correction of deficient items.
12. Field observations.
13. Status of RFIs.
14. Status of proposal requests.
15. Pending changes.
16. Status of Change Orders.
17. Pending claims and disputes.
18. Documentation of information for payment requests.

3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 – EXECUTION (Not Used)**

**ENF OF SECTION 01 31 00**

# SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.

2. Construction schedule updating reports.

3. Daily construction reports.

4. Site condition reports.

### 1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.

2. Predecessor Activity: An activity that precedes another activity in the network.

3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

### 1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.

2. PDF electronic file.

3. Two paper copies.

B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.

3. Total Float Report: List of all activities sorted in ascending order of total float.

4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Daily Construction Reports: Submit at monthly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

## 1.4 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Engineer.

2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.

5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.

6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

2. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.

b. Limitations of continued occupancies.

c. Uninterruptible services.

d. Partial occupancy before Substantial Completion.

e. Use of premises restrictions.

f. Provisions for future construction.

g. Seasonal variations.

h. Environmental control.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.

2. Unanswered Requests for Information.

3. Rejected or unreturned submittals.

4. Notations on returned submittals.

5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for the Notice to Proceed.

a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Engineer's approval of the schedule.

2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.

b. Mobilization and demobilization.

c. Purchase of materials.

d. Delivery.

e. Fabrication.

f. Utility interruptions.

g. Installation.

h. Work by Owner that may affect or be affected by Contractor's activities.

i. Testing.

j. Punch list and final completion.

k. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.

3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.

2. Description of activity.

3. Main events of activity.

4. Immediate preceding and succeeding activities.

5. Early and late start dates.

6. Early and late finish dates.

7. Activity duration in workdays.

8. Total float or slack time.

9. Average size of workforce.

10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

## 2.4 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.

15. Construction Work Change Directives received and implemented.

16. Services connected and disconnected.

17. Equipment or system tests and startups.

18. Partial completions and occupancies.

19. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.

3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Engineer Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION 10 32 00**

# SECTION 01 32 33 – PHOTOGRAPHIC DOCUMENTATION

## PART 1 – GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. This Section includes administrative and procedural requirements for construction photographs.

B. Related Sections: The following Section contains requirements that relate to construction photographs:

1. Division 01 Section 01 33 00 “Submittal Procedures” specifies general requirements for submitting digital construction photographs.

### 1.3 SUBMITTALS

A. Photographs: Provide a digital camera to take twenty-four (24) or more photos each time. Deliver two (2) sets of photo files on CD-ROM and one (1) set of prints (8x10) to the Construction Administrator for the Department.

B. Extra Sets: When requested by the Owner, the photographer shall prepare extra sets of prints or CD-ROMs. The photographer shall distribute these directly to the designated parties who will pay the costs for the extra sets directly to the photographer.

### 1.4 QUALITY ASSURANCE

A. Engage a qualified commercial photographer to take photographs during construction.

B. Photographer’s Qualifications: Photographer shall be an individual of established reputation who has been regularly engaged as a professional photographers for not less than three (3) years.

## PART 2 – PRODUCTS

### 2.1 PHOTGRAPHIC COPIES

A. On the date the work is begun and every thirty (30) days thereafter (until the work is at least 95 percent complete), the Contractor shall have digital photographs of the construction taken by a professional photographer.

B. Identification: Label each CD-ROM with project name and date the photographs were taken. With each submittal provide an applied label, rubber-stamped or index sheet with the following information:

1. Name of the project.

2. Name and address of the photographer.

3. Name of the Architect.

4. Name of the Contractor.

5. Date the photographs were taken.

6. Vantage Point: Description of vantage point, in terms of location, direction (by compass point), and elevation or story of construction.

## PART 3 – EXECUTION

### 3.1 PRECONSTRUCTION PHOTOGRAPHS

A. Before starting construction, take digital photos of the site and surrounding properties from different points of view, as selected by the Construction Administrator.

1. Take digital photos in sufficient number to show existing site conditions before starting Work.

2. Take digital photos of adjacent existing buildings either on or adjoining the property in sufficient detail to record accurately the physical conditions at the start of construction.

## 3.2 PHOTGRAPHIC REQUIREMENTS

A. Take twenty-four (24) or more digital photographs monthly, coinciding with the cutoff date associated with each Application for Payment. The Construction Administrator shall select the vantage points for each shot to best show the status of construction and progress since the last photos were taken.

B. As the digital photographs are a record of the work progress, they shall be taken each month, whether or not they show work done during the preceding month. Deliver the CD-ROMs and prints within ten (10) days of their taking.

C. Provide and coordinate the use of photogenic software to assure that the photos are viewable by all interested parties.

**END OF SECTION 01 32 33**

# SECTION 01 33 00 - SUBMITTAL PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.

2. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.

3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

4. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

### 1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

### 1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.

### 1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Engineer's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals.

1. Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.

    a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

    b. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 7 days for review of each resubmittal.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.

3. Include the following information for processing and recording action taken:

    a. Project name.

b. Date.

c. Name of Engineer

d. Name of Construction Manager.

e. Name of Contractor.

f. Name of subcontractor.

g. Name of supplier.

h. Name of manufacturer.

i. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

j. Number and title of appropriate Specification Section.

k. Drawing number and detail references, as appropriate.

l. Location(s) where product is to be installed, as appropriate.

m. Other necessary identification.

4. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return without review submittals received from sources other than Contractor.

a. Transmittal Form for Paper Submittals: Use AIA Document G810.

b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

1) Project name.

2) Date.

3) Destination (To:).

4) Source (From:).

5) Name and address of Engineer.

6) Name of Construction Manager.

7) Name of Contractor.

8) Name of firm or entity that prepared submittal.

9) Names of subcontractor, manufacturer, and supplier.

10) Category and type of submittal.

11) Submittal purpose and description.

12) Specification Section number and title.

13) Specification paragraph number or drawing designation and generic name for each of multiple items.

14) Drawing number and detail references, as appropriate.

15) Indication of full or partial submittal.

16) Transmittal number [numbered consecutively].

17) Submittal and transmittal distribution record.

18) Remarks.

19) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

2. Name file with submittal number or other unique identifier, including revision identifier.

   a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.

4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Engineer and Owner, containing the following information:

   a. Project name.

b. Date.

c. Name and address of Engineer.

d. Name of Construction Manager.

e. Name of Contractor.

f. Name of firm or entity that prepared submittal.

g. Names of subcontractor, manufacturer, and supplier.

h. Category and type of submittal.

i. Submittal purpose and description.

j. Specification Section number and title.

k. Specification paragraph number or drawing designation and generic name for each of multiple items.

l. Drawing number and detail references, as appropriate.

m. Location(s) where product is to be installed, as appropriate.

n. Related physical samples submitted directly.

o. Indication of full or partial submittal.

p. Transmittal number, numbered consecutively.

q. Submittal and transmittal distribution record.

r. Other necessary identification.

s. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

a. Project name.

b. Number and title of appropriate Specification Section.

c. Manufacturer name.

d. Product name.

F. Options: Identify options requiring selection by Engineer.

G. Deviations: Identify deviations from the Contract Documents on submittals.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Submit electronic submittals via email as PDF electronic files.

a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Engineer will return two copies.

3. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Engineer will not return copies.

4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.

b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

   a. Manufacturer's catalog cuts.

   b. Manufacturer's product specifications.

   c. Standard color charts.

   d. Statement of compliance with specified referenced standards.

   e. Testing by recognized testing agency.

   f. Application of testing agency labels and seals.

   g. Notation of coordination requirements.

   h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

   a. Wiring diagrams showing factory-installed wiring.

   b. Printed performance curves.

   c. Operational range diagrams.

   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:

   a. PDF electronic file.

   b. Three paper copies of Product Data unless otherwise indicated. Engineer will return two copies.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineer's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following

information, as applicable:

a. Identification of products.

b. Schedules.

c. Compliance with specified standards.

d. Notation of coordination requirements.

e. Notation of dimensions established by field measurement.

f. Relationship and attachment to adjoining construction clearly indicated.

g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

3. Submit Shop Drawings in the following format:

a. PDF electronic file.

b. Three opaque copies of each submittal. Engineer will retain two copies; remainder will be returned.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.

b. Product name and name of manufacturer.

c. Sample source.

d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each Sections. Such Samples must be in an undamaged condition at time of use.

    a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.

        1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

F. Coordination Drawings Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures.

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of engineers and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

U. Schedule of Tests and Inspections: Comply with requirements specified in Section 014000 "Quality Requirements."

V. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation

of product, for compliance with performance requirements in the Contract Documents.

W. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

X. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

## 2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

# PART 3 - EXECUTION

## 3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

## 3.2 ENGINEER'S ACTION

A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION 01 33 00**

# SECTION 01 40 00 - QUALITY REQUIREMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.

2. Requirements for Contractor to provide quality-assurance and -control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

3. Testing shall be performed for all concrete pours (one cylinder per truck), and all pile driving shall be monitored.

### 1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

## 1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

## 1.4 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Engineer.

2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Engineer.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

## 1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.

2. Project title and number.

3. Name, address, and telephone number of testing agency.

4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.

6. Description of the Work and test and inspection method.

7. Identification of product and Specification Section.

8. Complete test or inspection data.

9. Test and inspection results and an interpretation of test results.

10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.

11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

12. Name and signature of laboratory inspector.

13. Recommendations on retesting and re-inspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of representative making report.

2. Statement on condition of substrates and their acceptability for installation of product.

3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

4. Results of operational and other tests and a statement of whether observed performance complies with requirements.

5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be

performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.

b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

d. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Engineer.

2. Notify Engineer seven days in advance of dates and times when mockups will be constructed.

3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Engineer's approval of mockups before starting work, fabrication, or construction.

   a. Allow seven days for initial review and each re-review of each mockup.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

6. Demolish and remove mockups when directed unless otherwise indicated.

## 1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.

   2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

   1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

   4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

   5. Submit additional copies of each written report directly to authorities having jurisdiction,

when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality- control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

## 1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.

2. Notifying Engineer and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Engineer with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.

6. Retesting and reinspecting corrected work.

# PART 2 - PRODUCTS (Not Used)

# PART 3 - EXECUTION

## 3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted

2. Description of the Work tested or inspected.

3. Date test or inspection results were transmitted to Engineer.

4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.

## 3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 40 00**

# SECTION 01 42 00 - REFERENCES

## PART 1 - GENERAL

### 1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

### 1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

## 1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

| | |
|---|---|
| AA | Aluminum Association (The) |
| AABC | Associated Air Balance Council |
| AAMA | American Architectural Manufacturers Association |
| AASHTO | American Association of State Highway and Transportation Officials |
| AATCC | American Association of Textile Chemists and Colorists |
| ABAA | Air Barrier Association of America |
| ABMA | American Bearing Manufacturers Association |
| ACI | American Concrete Institute |
| ACPA | American Concrete Pipe Association |
| AEIC | Association of Edison Illuminating Companies, Inc.(The) |
| AF&PA | American Forest & Paper Association |
| AGA | American Gas Association |
| AHAM | Association of Home Appliance Manufacturers |
| AHRI | Air-Conditioning, Heating, and Refrigeration Institute, The |
| AI | Asphalt Institute |
| AIA | American Institute of Architects (The) |

| | |
|---|---|
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| AITC | American Institute of Timber Construction |
| ALSC | American Lumber Standard Committee, Incorporated |
| AMCA | Air Movement and Control Association International, Inc. |
| ANSI | American National Standards Institute |
| AOSA | Association of Official Seed Analysts, Inc. |
| APA | The Architected Wood Association |
| APA | Architectural Precast Association |
| API | American Petroleum Institute |
| ARI | Air-Conditioning & Refrigeration Institute |
| ARMA | Asphalt Roofing Manufacturers Association |
| ASCE | American Society of Civil Engineers |
| ASCE/SEI | American Society of Civil Engineers/Structural Engineering Institute (See ASCE) |
| ASHRAE | American Society of Heating, Refrigerating and Air-Conditioning Engineers |
| ASME | ASME International (American Society of Mechanical Engineers International) |
| ASSE | American Society of Sanitary Engineering |
| ASTM | ASTM International (American Society for Testing and Materials International) |
| ATIS | Alliance for Telecommunications Industry Solutions |
| AWCMA | American Window Covering Manufacturers Association (Now WCMA) |
| AWCI | Association of the Wall and Ceiling Industry |
| AWI | Architectural Woodwork Institute |
| AWPA | American Wood Protection Association (Formerly: American Wood Preservers' Association) |
| AWS | American Welding Society |
| AWWA | American Water Works Association |

| | |
|---|---|
| BHMA | Builders Hardware Manufacturers Association |
| BIA | Brick Industry Association (The) |
| BICSI | BICSI, Inc. |
| BIFMA | BIFMA International (Business and Institutional Furniture Manufacturer's Association International) |
| BISSC | Baking Industry Sanitation Standards Committee |
| CCC | Carpet Cushion Council |
| CDA | Copper Development Association |
| CEA | Canadian Electricity Association |
| CEA | Consumer Electronics Association |
| CFFA | Chemical Fabrics & Film Association, Inc. |
| CGA | Compressed Gas Association |
| CIMA | Cellulose Insulation Manufacturers Association |
| CISCA | Ceilings & Interior Systems Construction Association |
| CISPI | Cast Iron Soil Pipe Institute |
| CLFMI | Chain Link Fence Manufacturers Institute |
| CPA | Composite Panel Association |
| CRI | Carpet and Rug Institute (The) |
| CRRC | Cool Roof Rating Council |
| CRSI | Concrete Reinforcing Steel Institute |
| CRRC | Cool Roof Rating Council |
| CSA | Canadian Standards Association |
| CSA | CSA International (Formerly: IAS - International Approval Services) |
| CSI | Construction Specifications Institute (The) |
| CSSB | Cedar Shake & Shingle Bureau |
| CTI | Cooling Technology Institute (Formerly: Cooling Tower Institute) |

DHI Door and Hardware Institute

ECA Electrical Components Association

EIA Electronic Industries Alliance

EIMA EIFS Industry Members Association

EJCDC Engineers Joint Contract Documents Committee

EJMA Expansion Joint Manufacturers Association, Inc.

ESD ESD Association (Electrostatic Discharge Association)

ETL SEMCO Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA)

FIBA Federation Internationale de Basketball (The International Basketball Federation)

FIVB Federation Internationale de Volleyball (The International Volleyball Federation) FM Approvals FM Approvals LLC

FM Global FM Global (Formerly: FMG - FM Global)

FRSA Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.

FSA Fluid Sealing Association

FSC Forest Stewardship Council

GA Gypsum Association

GANA Glass Association of North America

GRI (Part of GSI)

GS Green Seal

GSI Geosynthetic Institute

HI Hydronics Institute

HI/GAMA Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

HMMA Hollow Metal Manufacturers Association (Part of NAAMM)

HPVA Hardwood Plywood & Veneer Association

HPW H. P. White Laboratory, Inc.

| | |
|---|---|
| IAPSC | International Association of Professional Security Consultants |
| ICBO | International Conference of Building Officials |
| ICEA | Insulated Cable Engineers Association, Inc. |
| ICRI | International Concrete Repair Institute, Inc. |
| ICPA | International Cast Polymer Association |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers, Inc. (The) |
| IES | Illuminating Engineering Society of North America |
| IEST | Institute of Environmental Sciences and Technology |
| IGMA | Insulating Glass Manufacturers Alliance |
| ILI | Indiana Limestone Institute of America, Inc. |
| ISA | Instrumentation, Systems, and Automation Society, The |
| ISO | International Organization for Standardization |
| ISSFA | International Solid Surface Fabricators Association |
| ITS | Intertek Testing Service NA (Now ETL SEMCO) |
| ITU | International Telecommunication Union |
| KCMA | Kitchen Cabinet Manufacturers Association |
| LGSEA | Light Gauge Steel Engineers Association |
| LMA | Laminating Materials Association (Now part of CPA) |
| LPI | Lightning Protection Institute |
| MBMA | Metal Building Manufacturers Association |
| MCA | Metal Construction Association |
| MFMA | Maple Flooring Manufacturers Association, Inc. |
| MFMA | Metal Framing Manufacturers Association, Inc. |
| MH | Material Handling (Now MHIA) |

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|---|---|
| MHIA | Material Handling Industry of America |
| MIA | Marble Institute of America |
| MPI | Master Painters Institute |
| MSS | Manufacturers Standardization Society of The Valve and Fittings Industry Inc. |
| NAAMM | National Association of Architectural Metal Manufacturers |
| NACE | NACE International (National Association of Corrosion Engineers International) |
| NADCA | National Air Duct Cleaners Association |
| NAGWS | National Association for Girls and Women in Sport |
| NAIMA | North American Insulation Manufacturers Association |
| NBGQA | National Building Granite Quarries Association, Inc. |
| NCAA | National Collegiate Athletic Association (The) |
| NCMA | National Concrete Masonry Association |
| NCTA | National Cable & Telecommunications Association |
| NEBB | National Environmental Balancing Bureau |
| NECA | National Electrical Contractors Association |
| NeLMA | Northeastern Lumber Manufacturers' Association |
| NEMA | National Electrical Manufacturers Association |
| NETA | InterNational Electrical Testing Association |
| NFHS | National Federation of State High School Associations |
| NFPA | NFPA (National Fire Protection Association) |
| NFRC | National Fenestration Rating Council |
| NGA | National Glass Association |
| NHLA | National Hardwood Lumber Association |
| NLGA | National Lumber Grades Authority |
| NOFMA | NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) |

| | |
|---|---|
| NOMMA | National Ornamental & Miscellaneous Metals Association |
| NRCA | National Roofing Contractors Association |
| NRMCA | National Ready Mixed Concrete Association |
| NSF | NSF International (National Sanitation Foundation International) |
| NSSGA | National Stone, Sand & Gravel Association |
| NTMA | National Terrazzo & Mosaic Association, Inc. (The) |
| NWFA | National Wood Flooring Association |
| PCI | Precast/Prestressed Concrete Institute |
| PDI | Plumbing & Drainage Institute |
| PGI | PVC Geomembrane Institute |
| PTI | Post-Tensioning Institute |
| RCSC | Research Council on Structural Connections |
| RFCI | Resilient Floor Covering Institute |
| RIS | Redwood Inspection Service |
| SAE | SAE International |
| SCAQMD | South Coast Air Quality Management District |
| SCTE | Society of Cable Telecommunications Engineers |
| SDI | Steel Deck Institute |
| SDI | Steel Door Institute |
| SEFA | Scientific Equipment and Furniture Association |
| SEI/ASCE | Structural Engineering Institute/American Society of Civil Engineers (See ASCE) |
| SIA | Security Industry Association |
| SJI | Steel Joist Institute |
| SMA | Screen Manufacturers Association |
| SMACNA | Sheet Metal and Air Conditioning Contractors' National Association |

| | |
|---|---|
| SMPTE | Society of Motion Picture and Television Engineers |
| SPFA | Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) |
| SPIB | Southern Pine Inspection Bureau (The) SPRI Single Ply Roofing Industry |
| SSINA | Specialty Steel Industry of North America |
| SSPC | SSPC: The Society for Protective Coatings |
| STI | Steel Tank Institute |
| SWI | Steel Window Institute |
| SWPA | Submersible Wastewater Pump Association |
| TCA | Tilt-Up Concrete Association |
| TCNA | Tile Council of North America, Inc. |
| TEMA | Tubular Exchanger Manufacturers Association |
| TIA/EIA | Telecommunications Industry Association/Electronic Industries Alliance |
| TMS | The Masonry Society |
| TPI | Truss Plate Institute, Inc. |
| TPI | Turfgrass Producers International |
| TRI | Tile Roofing Institute |
| UL | Underwriters Laboratories Inc. |
| UNI | Uni-Bell PVC Pipe Association |
| USGBC | U.S. Green Building Council |
| USITT | United States Institute for Theatre Technology, Inc. |
| WASTEC | Waste Equipment Technology Association |
| WCLIB | West Coast Lumber Inspection Bureau |
| WCMA | Window Covering Manufacturers Association |
| WDMA | Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) |

WI Woodwork Institute (Formerly: WIC - Woodwork Institute of California)

WMMPA Wood Moulding & Millwork Producers Association

WSRCA Western States Roofing Contractors Association

WWPA Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

DIN Deutsches Institut fur Normung e.V.

IAPMO International Association of Plumbing and Mechanical Officials

ICC International Code Council

ICC-ES ICC Evaluation Service, Inc.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

COE Army Corps of Engineers

CPSC Consumer Product Safety Commission

DOC Department of Commerce

DOD Department of Defense DOE Department of Energy

EPA Environmental Protection Agency

FAA Federal Aviation Administration

FCC Federal Communications Commission

FDA Food and Drug Administration

GSA General Services Administration

HUD Department of Housing and Urban Development

LBL Lawrence Berkeley National Laboratory

NCHRP National Cooperative Highway Research Program (See TRB)

NIST National Institute of Standards and Technology

OSHA Occupational Safety & Health Administration

PBS Public Buildings Service (See GSA)

PHS Office of Public Health and Science

RUS Rural Utilities Service (See USDA)

SD State Department

TRB Transportation Research Board

USDA Department of Agriculture

USP U.S. Pharmacopeia

USPS Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board

CR Code of Federal Regulations Available from Government Printing Office

DOD Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point

DSCC Defense Supply Center Columbus (See FS)

FED-STD Federal Standard (See FS)

FS Federal Specification Available from Department of Defense Single Stock Point Available from Defense Standardization Program Available from General Services Administration Available from National Institute of Building Sciences

FTMS Federal Test Method Standard (See FS)

MIL (See MILSPEC)

MIL-STD (See MILSPEC)

MILSPEC Military Specification and Standards Available from Department of Defense Single Stock Point

UFAS Uniform Federal Accessibility Standards Available from Access Board

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following

list.

| | |
|---|---|
| CBHF | State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation |
| CCR | California Code of Regulations |
| CDHS | California Department of Health Services |
| CDPH | California Department of Public Health, Indoor Air Quality Section |
| CPUC | California Public Utilities Commission |
| TFS | Texas Forest Service Forest Resource Development |

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 42 00**

# SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

### 1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Engineer, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

### 1.3 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion-and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

### 1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

## 1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

# PART 2 - PRODUCTS

## 2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.

B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2- 7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

C. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.

## 2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Engineer, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

## 2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self- contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to

produce ambient condition required and minimize energy consumption.

G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

1. Install electric power service underground unless otherwise indicated.

2. Connect temporary service to Owner's existing power source, as directed by Owner.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.

1. Provide additional telephone lines for the following:

a. Provide a dedicated telephone line for each facsimile machine in each field office.

2. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.

b. Ambulance service.

c. Contractor's home office.

d. Contractor's emergency after-hours telephone number.

e. Engineer's office.

f. Engineers' offices.

g. Owner's office.

h. Principal subcontractors' field and home offices.

3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

## 3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136.

Comply with NFPA 241.

2. Maintain support facilities until Engineer schedules Substantial Completion inspection.

3. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.

2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

2. Remove snow and ice as required to minimize accumulations.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.

2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touchup signs so they are legible at all times.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

H. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

I. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

## 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."

D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.

2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

K. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.

2. Insulate partitions to control noise transmission to occupied areas.

3. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.

4. Protect air-handling equipment.

5. Provide walk-off mats at each entrance through temporary partition.

M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.

1. Prohibit smoking in construction areas.

2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

## 3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.

C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.

2. Keep interior spaces reasonably clean and protected from water damage.

3. Discard or replace water-damaged and wet material.

4. Discard, replace, or clean stored or installed material that begins to grow mold.

5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.

2. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

## 3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.

2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

**END OF SECTION 01 50 00**

# SECTION 01 60 00 - PRODUCT REQUIREMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.

### 1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

### 1.3 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Engineer's Action: If necessary, Engineer will request additional information or

documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Section 013300 "Submittal Procedures."

b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

## 1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

## 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.

3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

6. Protect stored products from damage and liquids from freezing.

## 1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.

3. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

# PART 2 - PRODUCTS

## 2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Engineer will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:

   a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

   b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

   a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

   b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners, if requested.

5. Samples, if requested.

## PART 3 – EXECUTION (Not Used)

**END OF SECTION 01 60 00**

# SECTION 01 73 00 - EXECUTION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
3. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

### 1.2 INFORMATIONAL SUBMITTALS

A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

C. Certified Surveys: Submit two copies signed by land surveyor.

D. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

## 1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Engineer of locations and details of cutting and await directions from Engineer before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

   a. Primary operational systems and equipment.

   b. Fire separation assemblies

   c. Air of smoke barriers

   d. Mechanical systems piping and ducts

   e. Control systems

   f. Communication systems

   g. Fire-detection and alarm systems

   h. Conveying systems

   i. Electrical wiring systems.

   j. Operating systems of special construction

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

a. Water, moisture, or vapor barriers

b. Membranes and flashings

c. Sprayed fire-resistive material

d. Equipment supports

e. Piping, ductwork, vessels, and equipment

f. Noise- and vibration-control elements and systems

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.

2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the

Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

## 3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Engineer according to requirements in Section 013100 "Project Management and Coordination."

## 3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

2. Establish limits on use of Project site.

3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.

4. Inform installers of lines and levels to which they must comply.

5. Check the location, level and plumb, of every major element as the Work progresses.

6. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.

7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

## 3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or

with authorities having jurisdiction as the official "property survey."

## 3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.

2. Allow for building movement, including thermal expansion and contraction.

3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated,

arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

## 3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

## 3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

## 3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements"

## 3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

**END OF SECTION 01 73 00**

# SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Section 042000 "Unit Masonry" for disposal requirements for masonry waste.

2. Section 044300 "Stone Masonry" for disposal requirements for excess stone and stone waste.

3. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

### 1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

G. Qualification Data: For waste management coordinator.

## 1.3 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste material

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

**END OF SECTION 01 74 19**

# SECTION 01 77 00 - CLOSEOUT PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

### 1.2 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

### 1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

## 1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

## 1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.

3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer Construction Manager. Label with manufacturer's name and model number where applicable.

   a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Engineer's Construction Manager's signature for receipt of submittals.

5. Submit test/adjust/balance records.

6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.

2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

3. Complete startup and testing of systems and equipment.

4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."

6. Advise Owner of changeover in heat and other utilities.

7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

9. Complete final cleaning requirements, including touchup painting.

10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

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

2. Results of completed inspection will form the basis of requirements for final completion.

## 1.6 FINAL COMPLETION PROCEDURES

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."

2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. Certified copy of the list shall state that each item has been completed

or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

4. Submit pest-control final inspection report and warranty.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

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

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

## 1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Engineer will return annotated copy.

## 1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark

tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

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

**PART 3 - EXECUTION**

**3.1 FINAL CLEANING**

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.

e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition,

free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

g. Sweep concrete floors broom clean in unoccupied spaces.

h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

j. Remove labels that are not permanent.

k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.

o. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

## 3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION 01 77 00**

# SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.

2. Emergency manuals.

3. Operation manuals for systems, subsystems, and equipment.

4. Product maintenance manuals.

5. Systems and equipment maintenance manuals.

### 1.2 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Engineer will comment on whether content of operations and maintenance submittals are acceptable.

2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Engineer.

a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.

b. Enable inserted reviewer comments on draft submittals.

2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Engineer will return two copies.

C. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training.

Engineer will return copy with comments.

1. Correct or revise each manual to comply with Engineer's and Owner’s comments. Submit copies of each corrected manual within 15 days of receipt of Engineer's and Owner’s comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.

B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

C. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Engineer.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Engineer that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

F. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.

2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

G. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL", Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.

4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

## 2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.

4. Regulation and control procedures.

5. Instructions on stopping.

6. Normal shutdown instructions.

7. Seasonal and weekend operating instructions.

8. Required sequences for electric or electronic systems.

9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.

2. Manufacturer's name.

3. Color, pattern, and texture.

4. Material and chemical composition.

5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.

2. Types of cleaning agents to be used and methods of cleaning.

3. List of cleaning agents and methods of cleaning detrimental to product.

4. Schedule for routine cleaning and maintenance.

5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.

3. Identification and nomenclature of parts and components.

4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.

2. Troubleshooting guide.

3. Precautions against improper maintenance.

4. Disassembly; component removal, repair, and replacement; and reassembly instructions.

5. Aligning, adjusting, and checking instructions.

6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.

F. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

**END OF SECTION 01 78 23**

# SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.

2. Record Specifications.

3. Record Product Data.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

### 1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.

2. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.

2) Submit PDF electronic files of scanned record prints and one set(s) of file prints.

3) Submit record digital data files and one set(s) of plots.

4) Engineer will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.

2) Submit record digital data files and one set of record digital data file plots.

3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

   b. Record data as soon as possible after obtaining it.

   c. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.

2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.

3. Refer instances of uncertainty to Engineer for resolution.

4. Engineer will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file.

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

4. Identification: As follows:

a. Project name.

b. Date.

c. Designation "PROJECT RECORD DRAWINGS."

d. Name of Engineer.

e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file and one paper copy.

## 2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file and one paper copy.

## 2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file and one paper copy.

# PART 3 - EXECUTION

## 3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Engineer's reference during normal working hours.

**END OF SECTION 01 78 39**

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

## PART 1 - GENERAL REQUIREMENTS

### 1.1 DESCRIPTION - STRUCTURAL CAST-IN-PLACE CONCRETE

### 1.2 REFERENCE STANDARDS AND CITED PUBLICATIONS

A. American Concrete Institute (ACI) standards:

ACI 301 Standard Specification for Structural Concrete

ACI 117 Specifications for Tolerances for Concrete Construction and Materials

B. American Society for Testing & Materials (ASTM) standards:

A 185 Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement

A 615 Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

C 31 Method of Making and Curing Concrete Test Specimens in the Field

C 33 Specification for Concrete Aggregates

C 39 Test Method of Compressive Strength of Cylindrical Concrete Specimens

C 42 Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

C 94 Specification for Ready-Mixed Concrete

C 138 Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete

C 143 Test Method for Slump of Portland Cement Concrete

C 150 Specification for Portland Cement Concrete

C 171 Specification for Sheet Materials for Curing Concrete

C 172 Method of Sampling Freshly Mixed Concrete

C 173 Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

C 192 Method of Making and Curing Concrete Test Specimens in the Laboratory

C 231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

C 260 Specification for Air-Entraining Admixtures for Concrete

C 309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete

C 494 Specification for Chemical Admixtures for Concrete

C 595 Specification for Blending Hydraulic Cements

C 597 Test Method for Pulse Velocity Through Concrete

C 618 Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as Mineral Admixture in Portland Cement Concrete

C 805 Test Method for Rebound Number of Hardened Concrete

C 989 Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

C 1017 Specification for Chemical Admixtures for Use in Producing Flowing Concrete

C 1064 Test Methods for Temperature of Freshly Mixed Portland Cement Concrete

C 1077 Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

AASHTO T260 Sampling and Testing for Total Chloride Ion in Concrete and Concrete Materials

## 1.3 SUBMITTALS

A. General - Submittals required in this specification shall be submitted for review and acceptance.

B. Product Data - Submit (5) sets of manufacturer's product data with application and installation instructions for proprietary materials and items, admixtures, patching compounds, curing compounds, and others as requested by Architect.

C. Testing and Inspection Reports - Testing agencies shall report results of concrete and concrete materials tests and inspections performed during the course of the work to the Owner, Architect/Engineer, Contractor, and the Concrete Supplier. Strength test reports shall include location in the work where the batch represented by test was deposited and the batch ticket number. Final reports shall be provided within seven days of test completion.

## 1.4 QUALITY ASSURANCE

A. General - Concrete materials and operations shall be tested and inspected by the Testing Agency as work progresses. Failure to detect defective work or material will not prevent rejection later when a defect is discovered, nor shall it obligate Architect/Engineer for final acceptance.

B. The Owner shall engage and pay for the services of an Independent Testing Agency to perform inspections and tests of the concrete materials. In the event of a test failure, the Contractor shall pay for retesting. The Contractor shall also select a testing lab and pay for development of the concrete mix design. The Independent Testing Agency shall promptly submit written reports of each test and inspection made to the Owner, Architect, Engineer, Contractor, and to such other parties the Owner may specify.

C. Testing Agencies - Agencies that perform testing services on development of the concrete mixes shall meet the requirements of ASTM C 1077. Testing agencies performing the tests shall be acceptable to Architect/Engineer prior to performing any work.

D. Responsibilities of Contractor:

1. Submit data on qualifications of proposed testing agency to be used in development of the mix design for acceptance. Use of testing services will not relieve the Contractor of the responsibility to furnish materials and construction in full compliance with the Contract Documents.

2. Duties and Responsibilities: Unless otherwise specified in the Contract Documents, the Contractor shall assume the following duties and responsibilities:

   a. Qualify proposed materials and establish mixture proportions.

   b. Submit quality control program of the concrete supplier and provide copies of all test reports performed in the development of the concrete mix.

   c. Submit data and test documentation on materials and mixture proportions.

   d. Make available, without cost, random samples of production concrete as needed to perform required testing by the Independent Testing Agency.

   e. Furnish any necessary labor to assist the Independent Testing Agency in obtaining and handling samples at the project site or at the source of the materials.

   f. Advise the Independent Testing Agency sufficiently in advance of operations to allow for completion of quality tests and for assignment of personnel.

   g. Advise the Independent Testing Agency sufficiently in advance of any cancellation of required testing operations. The Contractor shall be responsible to the Independent Testing Agency for charges due to failure to notify if requirements for testing are cancelled.

   h. Provide and maintain for the sole use of the Independent Testing Agency adequate facilities for safe storage and proper curing of concrete test specimens on the job site for initial curing as required by ASTM C 31.

E. Testing Services - The Independent Testing Agency shall perform the following testing services:

1. Obtain composite samples in accordance with ASTM C 172. Each sample shall be obtained from a different batch of concrete on a random basis, avoiding any selection of the test batch other than by a number selected at random before commencement of concrete placement. Obtain at least one composite sample for each 50 yd3, or fraction thereof, of each design mixture of concrete placed in any one day. When the total quantity of concrete with a given design mixture is less than 25 yd3, the strength tests may be waived by Architect/Engineer, if in his judgment, adequate evidence of satisfactory strength is provided.

2. Conduct strength tests of concrete during construction in accordance with the following procedures:

   a. Mold and cure four cylinders from each sample in accordance with ASTM C 31. Record any deviations from the ASTM requirements in the test report.

b. Test cylinders in accordance with ASTM C 39. Test one specimen at 7 days for information, two specimens at 28 days for acceptance, and hold one specimen to be tested as directed by Architect/Engineer. The compressive strength test results for acceptance shall be the average of the compressive strengths from the two specimens tested at 28 days.

3. Determine slump of each composite sample and whenever consistency of concrete appears to vary, using ASTM C 143.

4. Determine temperature of each composite sample in accordance with ASTM C 1064.

5. Air content tests will be made on samples from the first three batches in the placement and until three consecutive batches have air contents within the range specified at which time one test will be performed for each 100 cubic yards or fraction thereof of each design mixture of concrete placed in any one day. This test frequency will be maintained until a batch is not within the range specified, at which time testing of each batch will be resumed until three consecutive batches have air contents within the range specified. Additional tests may be performed as necessary for control. These air content tests may be taken on composite samples or on samples from the batch at any time after discharge of two cubic feet of concrete.

6. When it appears that material furnished or work performed by Contractor fails to conform to Contract Documents, testing agency will immediately report such deficiency to the Architect/Engineer, Contractor, and concrete supplier.

7. Independent Testing Agency and its representatives are not authorized to revoke, alter, relax, enlarge, or release any requirement of the Contract Documents, or to accept any portion of the work.

8. Independent Testing Agency will report all test and inspection results to the Owner, Architect, Engineer, Contractor, concrete supplier and to such other parties the owner may specify within seven days after tests and inspections are performed.

F. Additional Testing and Inspection Services

1. The Independent Testing Agency shall perform the following testing services when necessary, at the Contractor's expense:

a. Additional testing and inspection required because of changes in materials or mixture proportions requested by the Contractor.

b. Additional testing of materials or concrete occasioned by failure to meet specification requirements.

2. When material furnished or work performed by the Contractor fails to conform to the Contract Documents the Independent Testing Agency will perform the following testing services when required by Architect/Engineer at the Contractor's expense:

a. Inspect concrete batching, mixing, and delivery operations.

b. Other testing or inspection services as required by Architect/Engineer.

G. Tests on Hardened Concrete in Place

1. General: Tests on hardened concrete will be performed by the testing agency when such tests are needed. Testing shall be at Contractor's expense when tests are performed to verify the strength of the structure when required by this specification. Owner will pay costs if tests are at his request and not required by this specification.

2. Nondestructive Tests: Use of the rebound hammer in accordance with ASTM C 805, pulse velocity methods in accordance with ASTM C 597, or other nondestructive devices may be permitted by the Architect/Engineer in evaluating the uniformity and relative concrete strength in place, or for selecting areas to be cored.

3. Core Tests

a. When required by the Architect/Engineer, cores shall be obtained and tested in accordance with ASTM C 42.

b. At least three representative cores shall be taken from each member or area of concrete in place that is considered potentially deficient. The location of cores is to be determined by the Architect/Engineer. If, before testing, cores show evidence of having been damaged subsequent to or during removal from the structure, replacement cores shall be taken.

c. Fill core holes with low slump concrete or grout of a strength equal to or greater than the original concrete.

H. Evaluation of Concrete Strength Tests

1. Standard molded and cured strength specimens: Test results from standard molded and cured test cylinders shall be evaluated separately for each specified concrete design mixture. Evaluation will be valid only if tests have been conducted in accordance with procedures specified. For evaluation, each specified design mixture shall be represented by at least five tests.

2. Nondestructive tests: Test results will be evaluated by the Architect/Engineer and will be valid only if tests have been conducted by properly calibrated equipment in accordance with recognized standard procedures.

3. Core tests: Core tests will be evaluated by the Architect/Engineer and will be valid only if tests have been conducted in accordance with specified procedures.

I. Acceptance of Concrete Strength

1. Standard molded and cured strength specimens: The strength level of concrete will be considered satisfactory when the averages of all sets of three consecutive compressive

strength test results equal or exceed the specified compressive strength fc' and no individual strength test result falls below the specified compressive strength fc' by more than 500 psi.

2. Nondestructive tests: Nondestructive tests shall not be used as the sole basis for accepting or rejecting concrete, but may be used when permitted to evaluate concrete where standard molded and cured cylinders have yielded results not meeting the criteria in Paragraph 1.

3. Core tests: Strength level of concrete in the area represented by core tests will be considered adequate when the average compressive strength of the cores are equal to at least 85 percent of specified compressive strength fc', and if no single core is less than 75 percent of the specified compressive strength, fc'.

J. Field Acceptance of Concrete

1. Air content: Concrete not within the limits of the air-entrainment specified shall not be used in the work.

2. Slump: Concrete not within the slump limits specified at the point of placement shall not be used in the work.

3. Temperature: Concrete not within temperature limits specified shall not be used in the work.

## 1.5 ACCEPTANCE OF STRUCTURE

A. General - Completed concrete work shall conform to applicable requirements of this Specification.

1. Concrete work that fails to meet one or more requirements of the Contract Documents but subsequently is repaired to bring the concrete into compliance may be accepted.

2. Concrete work that fails to meet one or more requirements of the Contract Documents and cannot be brought into compliance will be rejected.

3. Repair rejected concrete work by removing and replacing or by reinforcing with additional construction required by the Architect/Engineer.

4. Submit for acceptance the proposed repair methods, materials, and modifications needed to assure that concrete work will meet requirements of Contract Documents.

5. Document repair work to bring concrete work into compliance with Contract Documents and submit the documentation to Architect/Engineer for acceptance.

6. Contractor shall pay all costs to bring concrete work into compliance with requirements of the specification.

7. Concrete members cast in the wrong location will be rejected.

B. Dimensional Tolerances

1. Formed surfaces resulting in concrete outlines smaller than permitted by the tolerances of ACI 117, may be considered deficient in strength and subject to the provisions of Paragraph D, Strength of Structure.

2. Formed surfaces resulting in concrete outlines larger than permitted by ACI 117 may be rejected. Excess materials will be subject to removal when required by the Architect/Engineer.

3. Inaccurately formed concrete surfaces that exceed ACI 117 tolerances may be rejected.

4. Concrete with tolerances and defects exceeding the specified limitations may be rejected.

C. Appearance

1. Concrete exposed to view with defects that adversely affect the appearance of the specified finish will be rejected.

2. Concrete not exposed to view may be rejected for nonconforming appearance.

D. Strength of Structure

1. Criteria for determining potential strength deficiency: Strength will be considered deficient and concrete work will be rejected when the work fails to comply with requirements which control the strength of the structure including, but not limited to, the following conditions:

   a. Concrete strength failing to comply with requirements of the Contract Documents.

   b. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the requirements of the Contract Documents.

   c. Concrete elements which differ from the required dimensions or location.

   d. Curing not in accordance with Contract Documents.

   e. Inadequate protection of concrete from extreme temperature and other environmental conditions during early stages of hardening and strength development.

   f. Mechanical injury, construction fires, accidents, or premature removal of formwork resulting in deficient strength.

2. Action required when strength is potentially deficient: When strength of the structure is considered potentially deficient, corrective actions may be required by Architect/Engineer.

E. Durability

1. Criteria for determining potential durability deficiency: Durability of concrete work will be considered deficient and the concrete work will be rejected when it fails to comply with the requirements which control durability of the structure including, but not limited to, the following conditions:

   a. Strength failing to comply with that specified.

b. Materials for concrete not conforming to the specifications for Cements, Aggregated, Water, and Admixtures, including air entrainment.

c. Concrete not conforming to the air-entrainment requirements in Contract Documents.

d. Curing not in accordance with Contract Documents.

e. Inadequate protection of concrete from temperature and other environmental conditions during early stages of hardening and strength development.

2. Action required when durability is potentially deficient: When durability of the structure is considered to be deficient, the following actions will be taken by the Architect/Engineer:

a. Require that samples of the ingredient materials used in the concrete be obtained and tested.

b. Require that samples of hardened concrete be obtained from the structure by coring, sawing, or other acceptable means.

c. Require a laboratory evaluation of concrete and concrete materials to assess the ability of concrete to resist weathering action, chemical attack, abrasion, or other deterioration.

d. Concrete rejected for lack of durability shall be repaired or replaced as directed by Architect/Engineer.

## 1.6 PROTECTION OF IN-PLACE CONCRETE

A. Loading and support of concrete - Do not allow construction loads to exceed the superimposed load which the structural member, with necessary supplemental support, is capable of carrying safely and without damage.

B. Protection from mechanical injury - During the curing period, protect concrete from damaging mechanical disturbances including load stresses, shock and harmful vibration. Protect concrete surfaces from damage by construction traffic, equipment, materials, rain or running water, and other adverse weather conditions.

# PART 2 - CONCRETE MIXTURES

## 2.1 DESCRIPTION

A. Requirements for materials, proportioning, production, and delivery of concrete.

## 2.2 SUBMITTALS

A. Mixture proportions - Submit concrete mixture proportions by weight.

B. Concrete materials - Submit the following information for concrete materials:

1. For cementitious material: types, classes.

2. For aggregates: types, pit or quarry locations, producers' names, gradations, specific gravities.

3. For admixtures: types, brand names, producers.

4. For water and ice: source of supply.

C. Mixture proportion adjustments - Submit any adjustments to mixture proportions or changes in materials, along with supporting documentation, made during the course of the work.

D. Floor concrete - Submit evaluations and test results verifying adequacy of concrete to be placed in floors when cementing content is less than 5 sacks/yd. for 3,000 psi concrete and 6 sacks/yd. for 4,000 psi concrete.

E. Time of discharge - When it is desired to exceed time for discharge of concrete required by ASTM C 94, submit a request along with a description of the precautions to be taken.

## 2.3 PRODUCTS

A. Materials

1. Cementitious material - Cementitious material shall consist of Portland cement conforming to ASTM C 150, or blended hydraulic cement conforming to ASTM C 595, or Portland cement conforming to ASTM C 618, or a Portland cement conforming to ASTM C 150 and a blast furnace slag cement conforming to ASTM C 989. Unless otherwise specified, cementitious material shall conform to ASTM C 150 Type I or Type II without the addition of cementitious or pozzolanic mineral admixtures. Cementitious material used in concrete shall be of the same brand and type, and from the same plant of manufacture as the cementitious material used in the concrete represented by the submitted field test data or used in the trial mixtures.

2. Aggregates - Aggregates shall conform to ASTM C 33 unless otherwise specified. When a single size or a combination of two or more sizes of coarse aggregates are used, the final gradation shall conform to the grading requirements of ASTM C 33 unless otherwise specified or permitted.

3. Water and ice - Mixing water for concrete and water used to make ice shall meet the requirements of ASTM C 94.

4. Admixtures - When required or permitted, admixtures shall meet the requirements of the following:

   a. Air entraining admixtures - ASTM C 260.

   b. Chemical admixtures - ASTM C 494.

   c. Chemical admixtures for use in producing flowing concrete - ASTM C 1017

5. Change of materials - When brand, type, size, or source of cementitious materials, aggregates, water, ice, or admixtures are proposed to be changed, new data or evidence

which indicates that the change will not adversely affect the relevant properties of the concrete shall be submitted for acceptance prior to use in concrete.

B. Performance and Design Requirements.

1. Cementitious material content - The cementitious material content shall be adequate for concrete to satisfy the specified requirements for strength, water-cementitious material ratio and finishing ability. For concrete used in floors, cement content shall not be less than the following (unless documentation is submitted satisfying Sub Paragraph 2.02 D):

   Nominal maximum size of aggregate, in.

   Minimum cement content, lb/yd3

   1 ½ 470*

   1 520

   3/4 540

   3/8 610

   *Minimum cement content shall be 520 lb/yd3 if concrete will be exposed to freezing and thawing in the presence of de-icing chemicals.

2. Slump - Slump shall not exceed the specified slump. Concrete shall have, at the point of delivery, a slump of:

   a. Ramps and sloping surfaces - 3" maximum

   b. Reinforced foundations - 1" minimum to 3" maximum

   c. Other concrete - 2" minimum to 4" maximum

   d. Determine the slump by ASTM C 143. Slump tolerances shall meet the requirements of ACI 117. When use of a plasticizing admixture conforming to ASTM C 1017 or when a Type F or G high range water reducing admixture conforming to ASTM C 494 is permitted to increase the slump of concrete, concrete shall have a slump of 2 to 4 inches before the admixture is added and a maximum slump of 6 inches at the point of delivery after the admixture is added, unless otherwise specified.

3. Size of coarse aggregate - Except when otherwise specified or permitted, nominal maximum size of coarse aggregate shall not exceed three-fourths of the minimum clear spacing between reinforcing bars, one-fifth of the narrowest dimension between sides of forms, or one-third of the thickness of slabs or toppings.

4. Air content - See plans for air-entrainment requirements. Unless otherwise specified, air content for exterior exposed concrete at the point of delivery shall conform to the requirements of ACI - 301, Table 4.2.2.4 for mild exposure. For specified compressive

strengths above 5,000 psi, the total air contents indicated in Table 4.2.2.4 may be reduced by 1 percent.

5. Chloride ion concentration - Unless otherwise specified, maximum water soluble chloride ion concentrations in hardened concrete at ages from 28 to 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures shall not exceed .30% by weight of cement. When testing is performed to determine water soluble chloride ion content, test procedures shall conform to AASHTO T 260.

6. Concrete temperature - When the average of the highest and lowest temperature during the period from midnight to midnight is expected to drop below 400 F for more than three successive days, concrete shall be delivered to meet the following minimum temperature immediately after placement:

   · 550 F for sections less than 12 in. in the least dimension

   · 500 F for sections 12 in. in to 36 in. in the least dimension

   · 450 F for sections 36 in. to 72 in. in the least dimension

   · 400 F for sections greater than 72 in. in the least dimension

   The temperature of concrete as placed shall not exceed these values by more than 200 F. These minimum requirements may be terminated when temperatures above 500 F occur during more than half of any 24 hour duration. Unless otherwise specified or permitted, the temperature of concrete as delivered shall not exceed 900 F.

7. Strength - The compressive strength is to be as specified on the drawings.

   Unless otherwise specified, strength requirements shall be based on the 28-day compressive strength determined on 6 x 12 inch cylindrical specimens made and tested in accordance with ASTM C 31 and C 39 respectively.

8. Water-cementitious material ratio - The water-cement or water-cementitious material ratio of the concrete for each portion of the work shall not exceed .50 for 3,000 psi concrete and .48 for higher strength concrete.

   a. If cementitious or pozzolanic mineral admixtures conforming to ASTM C 989 or ASTM C 618 are used, the cement portion of the water-cement ratio shall be the total weight of cementitious materials.

   b. The combined weight of fly ash and pozzolan conforming to ACTM C 618 shall not exceed 20 percent of the total weight of cementitious material. The fly ash and pozzolan present in an ASTM Type IP or IPM blended cement conforming to ASTM C 595 shall be included in the calculated percentage.

9. Proportioning - Proportion concrete to conform to Paragraph C - Performance and design requirements, to provide workability and consistency so concrete can be worked readily into

forms and around reinforcement without segregation or bleeding, and to provide the compressive strength specified.

## 2.4 EXECUTION

A. Measuring, batching, and mixing - Production facilities shall produce concrete of the specified quality and conforming to the requirements of this Specification. Unless otherwise specified, measure, batch and mix concrete materials and concrete in conformance with ASTM C 94.

B. Delivery - Deliver concrete which will possess the specified characteristics in the freshly mixed state at the point of placing. Transport and deliver concrete in equipment conforming to the requirements of ASTM C 94.

1. Slump adjustment - When concrete arrives at the point of delivery with a slump below that which will result in the specified slump at the point of placement and is unsuitable for placing at that slump, the slump may be adjusted to the required value by adding water up to the amount allowed in the accepted mixture proportions unless otherwise specified by the Architect/Engineer. Addition of water shall be in accordance with ASTM C 94. Do not exceed the specified water-cementitious material ratio or slump. Do not add water to concrete delivered in equipment not acceptable for mixing. After plasticizing or high-range water-reducing admixtures are added to the concrete at the site to achieve flowable concrete, do not add water to the concrete. Measure slump and air content of air-entrained concrete, after slump adjustment, to verify compliance with specified requirements.

2. Time of discharge - Time for completion of discharge shall be as specified by ASTM C 94, unless otherwise permitted. When discharge is permitted after more than 90 minutes have elapsed since batching or after the drum has revolved 300 revolutions, verify that air content of air-entrained concrete, slump, and temperature of concrete are as specified.

# PART 3 - HANDLING, PLACING, AND CONSTRUCTING

## 3.1 EXECUTION

A. Preparation

1. Do not place concrete until data on materials and mixture proportions are accepted.

2. Before placing concrete in forms, complete the following:

a. Comply with formwork requirements specified.

b. Remove dirt, water, and other foreign material from surfaces, including reinforcement and embedded items, against which concrete will be placed.

c. Comply with reinforcing steel placement requirements specified.

d. Position and secure in place expansion joint material, anchors, and other embedded items.

e. Obtain acceptance of finished preparation.

3. Before placing a concrete slab on grade, clean foreign material from the subgrade and complete the following:

a. In-place density of subgrade soils shall be uniform throughout the area and at least the minimum required by Contract Documents.

b. Subgrade shall be free from frost or ice.

c. Subgrade shall be moist with no free water and no muddy or soft spots.

4. When high ambient temperatures necessitate protection of concrete immediately after placing or finishing, make provisions in advance of concrete placement for windbreaks, shading, fogging, sprinkling, ponding, or wet covering.

5. During ambient temperature conditions described in Section 2.03, Paragraph B, Subparagraph 6 - concrete temperature, make provisions in advance of concrete placement to maintain the temperature of the concrete as specified. Use heating, covering, or other means adequate to maintain required temperature without overheating or drying of concrete due to concentration of heat. Do not use combustion heaters unless precautions are taken to prevent exposure of the concrete to exhaust gases containing carbon dioxide.

B. Placement of concrete.

1. Wet weather - Do not begin to place concrete while rain, sleet, or snow is falling. Do not allow rain water to increase mixing water or to damage the surface of the concrete.

2. Cold weather - Concrete temperatures and ambient temperatures shall meet minimum temperature requirements of Section 2.03, Paragraph B, Subparagraph 6 - Concrete temperature.

3. Hot weather - The temperature of concrete as placed shall not exceed 900 F unless otherwise permitted. Loss of slump, flash set, or cold joints due to temperature of concrete as placed will not be acceptable. When temperature of concrete exceeds 900 F, obtain acceptance, when required, of proposed precautionary measures. When temperature of steel reinforcement, embedments, or forms is greater that 1200 F, fog steel reinforcement, embedments, and forms with water immediately prior to placing concrete.

4. Conveying - Convey concrete from mixer to the place of final deposit rapidly by methods which prevent segregation or loss of ingredients and will assure the required quality of concrete. Do no use aluminum pipes or chutes.

5. Depositing - Deposit concrete continuously in one layer or in layers to have fresh concrete deposited on in-place concrete that is still plastic. Do not deposit fresh concrete on concrete

that has hardened sufficiently to cause formation of seams or planes of weakness within the section, unless construction joint requirements are met. Do not use concrete that has surface dried, partially hardened, or contains foreign material. Do not subject concrete to any procedure that will cause segregation. Deposit concrete as near as practicable to the final position to avoid segregation.

6. Consolidating - Consolidate concrete by vibration. Concrete shall be thoroughly worked around reinforcement and embedded items and into corners of forms, eliminating all air or stone pockets which may cause honey-combing, pitting, or planes of weakness. Use internal vibrators of the largest size and power that can properly be used in the work as described in ACI - 301, Table 5.3.2.5. Workers shall be experienced in use of the vibrators. Do not use vibrators to move concrete within the forms.

7. Construction joints and other bonded joints - Locate construction joints as indicated on the Project Drawings or as accepted by the Architect/Engineer.

C. Finishing formed surfaces - After removal of forms, give each formed surface one or more of the finishes as specified by the Architect/Engineer. Finishes are to be in accordance with ACI-301, Section 5.3.3.

D. Finishing unformed surfaces - Place concrete at a rate that allows spreading, straight edging, and darbying or bullfloating before bleed water appears. Strike smooth the top of walls, buttresses, horizontal offsets, and other similar unformed surfaces and float them to a texture consistent with finish of adjacent formed surface. Finish slab surfaces as specified by the Architect/Engineer. Finishes are to be in accordance with ACI-301. Tolerance requirements are to be as specified in the Construction Documents and meet the requirements of ACI-117.

E. Sawed control joints - Where saw cut joints are required or permitted, start cutting as soon as concrete has hardened sufficiently to prevent dislodgement of aggregates. Saw a continuous slot to a depth of one-fourth the thickness of the slab but not less than one inch. Complete sawing within 12 hours after placement.

F. Curing and protection.

1. General - Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury. Protect concrete during the curing period such that the concrete temperature does not fall below the requirements of Section 2.03, Paragraph B, Sub-Paragraph 6 - concrete temperature. Cure concrete in accordance with ACI-301, 5.3.6.2 or 5.3.6.3 for 7 days after placement.

2. Formed concrete surfaces - Keep absorbent wood forms wet until they are removed. After form removal, cure concrete by one of the methods in Sub-Paragraph 3 - Unformed Concrete Surfaces.

3. Unformed concrete surfaces - After placing and finishing, use one or more of the following methods to preserve moisture in concrete:

a. Ponding, continuous fogging or continuous sprinkling.

b. Application of mats or fabric kept continuously wet.

c. Continuous application of steam (under 1500 F).

d. Application of sheet materials conforming to ASTM C 171.

e. Application of a curing compound conforming to ASTM C 309. Apply the compound in accordance with manufacturer's recommendation after water sheen has disappeared from the concrete surface and after finishing operations. The rate of application shall not exceed 200 ft2/gal. For rough surfaces, apply in two applications at right angles to each other, not to exceed 200 ft2/gal. for each coat. Do not use curing compound on any surface where concrete or other material will be bonded unless the curing compound will not prevent bond or unless measures are to be taken to completely remove the curing compound from areas to receive bonded applications.

G. Repair of surface defects.

General - Repair tie holes and surface defects immediately after form removal. Where the concrete surface will be textured by sandblasting or bush-hammering, repair surface defects before texturing. Repairs are to meet the requirement of ACI-301, Section 5.3.7.

**END OF SECTION 03 30 00**

# SECTION 13 13 19 – PRE-FABRICATED METAL SHADE STRUCTURE

## PART 1 - GENERAL

### 1.01 SCOPE

A. This work consists of furnishing and installing a pre-fabricated steel shade structure in accordance with the drawings and applicable specifications.

### 1.02 SUBMITTALS

A. Manufacture's data and installation procedures shall be submitted as per section 013300.

B. All manufacturers shall have a minimum of 20 years experience in the exclusive fabrication of tubular steel shade structures and shall submit written evidence of such. Shade structure fabrication shall be the manufacturers primary business and shall be manufactured and powder coated in the manufacturers own facility under his direct supervision. Manufacturer shall have fabricated similar structures to that which is specified. Manufacturer shall employee a full time quality control person to insure the applicable standards are met. All non-specified manufacturers shall submit complete shop drawings indicating type, size & gauge of material used, with detailed connections to the specifying agency at least 10 days prior to bid opening for review and written pre-approval. All bids submitted without prior approval will be rejected.

C. The structure manufacturer shall submit structural calculations after award of bid, sealed by a registered engineer in the state in which the structure is to be erected for review and approval by the approving agency. (Structural calculations shall not be required for federal projects but it is the manufactures and contractors responsibility to assure that the structure slab and footings are structurally sound.)

D. Manufacturer shall warranty the structure to be free from defects in material and work-man-ship for a period of (10) ten years from date of acceptance by owner. Warranty does not include damage from theft, fire, vandalism or acts of God. Manufacturer shall repair or replace structure components of like kind at his option, to match existing material and workmanship. Steel roof finish shall be warranted for 30 years under a separate roof manufacturer's warranty. Powder coat paint shall be warranted for 5 years after acceptance from owner against peeling, flaking, and rusting. Warranty does not cover damage caused from shipping, erection of structure, lack of touchup and maintenance, overspray from lawn sprinklers or vandalism. Submit warranty prior to project completion.

E. Three sets of structural calculations with associated details for the structure shall be signed and sealed by a registered engineer licensed in the state in which the structure (s) are to be installed and shall be provided without additional cost to the owner.

## PART 2 - PRODUCTS

### 2.01 PRE-FABRICATED STEEL SHADE STRUCTURES

A. The pre-fabricated steel shade structures shall be a "Classic Recreation Systems", **Campion** model, 30'x60' "T-Shape (measured point to point of roof edge), as shown on the drawings and specified herein. Columns shall be 7"x7"x.188" minimum tubular steel, surface mounted with one hidden anchor bolt per column. Center to center of columns shall be 26'-0"x 18'-8" & 15'-0"x11'-0". Eave height shall be 10'-0" minimum and roof height at peak shall be ±23'-0". Square footage under roof shall be 2,100. Frame shall bolt together in the field with no field welding required. No bolts shall be exposed for the frame members.

## 2.02 DESIGN CRITERIA

A. Structure shall be designed and fabricated to the IBC (Latest Edition) with standard load designs of 20# per S.F. minimum live load, 100 mph wind load and the applicable zone for seismic loads.

## 2.03 STEEL MEMBERS

A. All members shall be designed according to the "American Institute of Steel Construction" (AISC) specifications and the "American Iron and Steel Institute" (AISA) specifications for cold-formed members.

## 2.04 WELDING

A. All fabrication welds shall be in strict accordance with the structural welding code of the American Welding Society (AWS) specifications. All structural welds shall be in compliance with the requirements of "Pre-qualified" welded joints. All welding shall conform to ASTM A-233 series E-70XX electrodes - low hydrogen. Field welding shall not be required.

## 2.05 FRAME MEMBERS

A. All frame members shall be sized according to engineering. Fascia shall be tube steel. All bolts shall be A-307 or A-325 and hidden at all connections. All tubing for mid beam members shall be ASTM 500 grade B. Beam end plates shall be ASTM A36 fy=36,000 psi UNO. Open or welded "C" channels, "I" beams, "S" or "Z" purlins or angle iron shall not be allowed.

## 2.06 ROOFING AND TRIM

A. All roofing shall be 24 gauge Zincalume / Galvalume coated steel panels. "Standing Seam" panels shall be 16" wide with 1 3/4" high ribs @ 16"o.c. All roofing shall be pre-finished with Duratech 5000 or equal, 30 year paint finish. All roof panels shall be pre-cut with ribs running with the slope of the roof. Roof trim shall be 24 gauge Zincalume / Galvalume coated pre-finished to match the roof finish and color. Screws & rivets shall match roof finish and color.

## 2.07

A. All frame members shall be media blasted to a white finish removing all rust, scale, oil and grease.

Powder coating for all frame members shall be provisionally warranted for (5) five years with TRUZINC 7520-70138 primer with a Dry Film Thickness of (2.0 - 6.0 mils) & hardness of 2H-3H with a Salt Spray Resistance of **6000 hours** and TGIC polyester (2.5-3 mils) minimum total 5-6 mils finish has **1000 hour** salt spray Resistance of 1000 hours. Finish shall be a smooth uniform surface with no pits, runs or sags.

## PART 3 - EXECUTIONS

### 3.01 FOOTINGS & CONCRETE SLAB

A. Footings shall be structurally engineered by the structure manufacturer to meet local codes and site conditions. (Layout and footing drawings shall be made available to the contractor or owner from the manufacturer). Anchor bolts for shall be supplied by the concrete contractor. Concrete footing rebar shall be ASTM A-615 grade 40 #4 bars & smaller, grade 60 #5 bars & larger. Concrete shall be 5 sack mix “Portland” cement. Maximum slump shall not exceed 4”. Concrete compressive strength shall be a minimum of 4500 psi Type V @ 28 days.

### 3.02 ERECTION

A. Manufacturer shall supply complete layout and detail plans with installation instructions for the structure prior to installation. The structure shall be erected in a work-man-like manner with framing, roofing and trim installed according to the manufacturer’s installation instructions. Care shall be taken to avoid damaging the structure during installation. Touch up powder coat paint with paint provided to prevent rusting.

**END OF SECTION 13 13 19**

# SECTION 13 42 13 - PREFABRICATED RESTROOM BUILDING AND CONCESSION BUILDING

A. General, Specifications and Clarification of Prefabricated Building and Site Installation

1. This portion of the bid specifications does not follow the CSI standard format as the prefabricated structure in this bid is an offsite constructed “product” and not “typical” general construction.

2. The installation of the product on site is general construction, which must be coordinated between the General Contractor/Owner and the subcontractor. Specifications for the building foundation/pad shall be provided herein by the specified subcontractor. Due to the responsibility of the specified building subcontractor for architecture, engineering and a five-year warranty, the site pad/foundation must meet the subcontractor’s design so the pad and building can be considered from a single source for warranty purposes. The subcontractor must accept the pad and compactions tests before they take responsibility for the entire system under their warranty.

B. Architectural Design/Engineering and Insurance Responsibility

1. While the Owner has provided bid specifications and a design for the building, the building subcontractor remains legally responsible for architecture, engineering, and all applicable building, safety, health, fire, and accessibility code compliance. Since they hold professional design responsibility to the owner, the building subcontractor must furnish certification that they provide product liability insurance in the amounts required by the general specifications to cover property damage and personal injury. Final drawings shall be stamped by a Louisiana engineer and Louisiana State Fire Marshall, suitable for local permitting.

C. Errors and Omissions Insurance

1. The building subcontractor must also provide an additional Professional Architectural and Engineering Errors and Omissions insurance, in the minimum amount of $2,000,000, to cover claims against the owner or the General Contractor/Owner for State and Federal ADA handicapped accessibility and other design/engineering code issues. This Errors and Omission Policy must remain in effect for 5 years from the completion and owner acceptance of the project. Products liability insurance (since it does not cover professional design responsibility only) will be insufficient for this bid and will be cause for rejection of the bidder.

D. Insurance for the Building offsite, while in transit, and/or on site until turn over and final owner acceptance

1. The subcontractor may request invoicing for a percentage of building completion in-plant monthly. Under UCC law, this means that the subcontractor is turning over responsibility for the portion invoiced to the owner yet the building will not be on the owner’s property and may not be covered by the owner’s insurance. Therefore, the building subcontractor must provide

a separate insurance policy insuring the owner and General Contractor/Owner as additionally insured for liability, damage and/or vandalism to the building while in the manufacturing facility, while in transit, and/or while in storage at a certified bonded storage facility or at the final project site for up to $200,000 for each prefabricated building module, until the building is final accepted by owner.

E. General Contractor/Owner Coordination with Subcontractor

1. The specified prefabricated public restroom building requires coordination between the General Contractor/Owner (who prepares the site pad and delivery access for the prefabricated storage building) and the prefabricated restroom building subcontractor (who completes the architectural design, engineering, off-site building construction, delivery and installation on site.) The specified prefabricated restroom building specifications include unique components/systems which are custom to the restroom building subcontractor. Since the restroom subcontractor is responsible for design, additional insurance requirements for errors and omissions is required.

F. General Contractor/Owner, General Scope of Work

1. The General Contractor/Owner for this project is responsible for the site survey and staking the building location, finished slab survey elevations and marking on site, construction and compaction of the required building pad; access to the site for a large crane and tractor trailers delivering the prefabricated building; providing water, sewer, and power at a point of connection (POC) within 6 feet of the building and at the depth required by the building subcontractor and local code; and the installation of any sidewalks outside the building footprint.

2. The General Contractor/Owner is responsible for verification to the building subcontractor design/build firm that there are no unanticipated site delivery issues such as overhead wires, trees, tree roots, or existing grade changes and that prevent a clear path of travel between a roadway and the final site exists for a tractor trailer and crane to expedite delivery. The subcontractor requires that the General Contractor/Owner certify that the required delivery crane must be able to set the building module/modules within 35’ distance from the center of the building to the center of the crane hoist.

G. Prefabricated Restroom Building, General Scope of Work:

1. The prefabricated restroom building specialist will provide to the General Contractor/Owner final building design architectural drawings and engineering calculations under the responsibility of a licensed structural engineer, in compliance with all local, state and federal codes. The subcontractor shall construct the building offsite as a permanently relocatable building, transport it to the final required destination, and install the building turnkey, (to 6’ from the building footprint) on a General Contractor/Owner prepared pad per the drawings included in this bid.

H. Licensing:

1. The subcontractor must comply with all the State of Louisiana; State Fire Marshall's requirements".

I. Bid Standard for the Prefabricated Restroom Building

1. The Owner understands that there are several firms who design and build various types of public restroom buildings in varying quality and architectural styles, using similar or different construction methods and materials. For the purpose of this bid, the owner has selected:

   a. Public Restroom Company, 2587 Business Parkway, Minden, Nevada, 89423 and specifications herein that this firm is the standard for architectural design (safety; green design, code compliance, and site specific compatibility.) PRC is also the standard of building performance and materials selection quality for the 50 year building design life with low maintenance based upon the longevity of the materials selected. Other firms quoting "or equal" whose criteria and standards do not comply will be rejected. PRC contact information is (888-888-2060 extension 113 telephone, and 888-888-1448 fax.)

J. "Or Equal Restroom Subcontractors"

1. The Owner may also allow other firms to become qualified to bid but any firms so authorized to bid must comply with the bid specifications and plans, or be subject to post bid rejection.

2. In order to provide full and open competition, other firms may request approval as "or equal." The following items must be provided to the Owner in accordance with substitution requirements outlined in the project specifications. Failure to supply these items will result in bid rejection.

   a. Or Equal applicant shall provide with their bid submission, scaled floor plans and elevations, to show general architectural design criteria is met.

   b. Or Equal applicant shall provide with their bid submission, a written list of each and every deviation from the published bid specifications/plans. Lack of specificity to each deviation from the bid specifications will be cause for rejection.

   c. Or Equal applicant shall provide their bid submission, manufacturer's certification of test compliance from a national independent testing laboratory (within the past year) to support claim for absorption resistance of the slab type that will be used in their proposed restroom. The written report must state the concrete compression strength (minimum of 7,000 PSI) and absorption resistance (not greater than 3%) per ASTM standard #C39 and #C642, respectively.

   d. Or Equal applicant must provide a list of every building they designed and built over the last 3 years utilizing the same building materials/systems design criteria as published in

this bid. Provide date of building bid, date of completion, and most knowledgeable owner contact.

e. Or equal applicant shall provide certification of the special insurance required in this bid.

f. Or Equal applicant shall be responsible for and bear all cost for architecture, plan checks, design and structural engineering and all fees in obtaining approvals and permits from applicable agencies.

3. The Owner or their consultant will be solely responsible for the decision to accept or reject the "or equal" submission.

K. Certificate of Off-site Inspection and Construction Compliance, Provision for Maintenance Manuals, and Warranty

1. The off-site restroom construction requires that a licensed third party inspection firm provide the owner and the local building official with certification and compliance for the building with the approved plans and specifications. A certificate of compliance shall be issued by this inspector to the local building official to provide certification that the building meets and or exceeds the approve plans and applicable codes.

2. At the project conclusion, the building subcontractor shall furnish two sets of complete maintenance manuals including a troubleshooting guide, location of manufacturers of key components for replacement parts together with final as-built plans, and a twenty (20) year structure warranty and a five (5) year component warranty to the owner or General Contractor/Owner.

L. Site Scope of Work by General Contractor/Owner

The General Contractor/Owner shall prepare the restroom building pad to receive the prefabricated building in accordance with the bid "pad preparation drawings." Depending on site soils conditions, a perimeter footing or other foundation structure may be required.

1. The building pad shall be excavated to 14" deep from the final building concrete slab elevation in accordance with the drawing titled "foundation pad design."

2. The building pad shall meet a 90% compaction in lifts using class 2 base for the first four inches and coarse sand for the last two inches of the pad, leaving the finished sub grade pad elevation at finished floor, minus 8".

3. The General Contractor/Owner shall provide water point of service at 30" below finished building slab; sewer at 24" below the finished building slab; and electrical at 36" below the finished building slab or other per bid plans.

4. General Contractor/Owner shall coordinate with restroom subcontractor to provide full site delivery access for a 70' tractor-trailer and hydro crane to the final building site.

5. If the final site access is over existing sidewalks, utilities, or landscaping, the General Contractor/Owner shall be responsible for plating and or tree trimming, utility line removal, or other to protect any existing conditions.

6. The hydro crane must be able to locate no greater than 35’ from the center point of the building to the center point of the crane.

7. The utilities shall be furnished per bid site plans at specified points of connection (POC) nominally 6’ from the building line.

8. General Contractor/Owner shall furnish and install final grading, landscaping and sidewalks.

M. Connection to Utilities

1. The restroom subcontractor will furnish traffic rated concrete lockable concrete Christy curb boxes for Electrical, Water, and Sewer at the proper POINT OF CONNECTION AND AT THE PROPER ELEVATION BELOW GRADE, for this project. Restroom subcontractor shall provide final hook up of the water from building to POC; sewer hookup to POC; and electrical sleeve from building panel to POC only. Final utility connections shall be by General Contractor/Owner or others. General Contractor/Owner shall flush the water lines thoroughly before making final water connection to the building.

N. Concrete Slab, Required Independent Testing Laboratory Certification:

1. The prefabricated building slab special concrete technology claims to be water and urine resistant for life due to special additive technology. The building subcontractor must furnish a test certification of compliance from a national independent testing laboratory to support the claim for absorption resistance. The written report must state the concrete compressive strength (minimum of 7,000 PSI) and absorption resistance (not greater than 3%) per ASTM standard #C642 and #C39 respectively. Since this non-absorbency capability is so significant, the subcontractor must provide a general certification of compliance.

O. Prefabricated Restroom Building:

1. The Owner has evaluated several prefabricated restroom building subcontractors. This bid requires such a building be used in lieu of site built traditional construction because of the unique built-in advantages guaranteed by the design/build firm. This technology includes many new innovations such as non-absorbent concrete; anti-microbial components to reduce health risks; built in vandal resistance design; lowered maintenance and long term warranties that reduce owner risk for failure. The specifications below are written around this new technology.

P. Mat Engineered Concrete Building Slab/Foundation:

1. The mat engineered 8” thick slab/foundation shall be engineered and constructed to withstand the transportation weight of the building without cracking and to resist absorption from any

liquids deposited on the surface. The concrete slab shall be constructed inside a steel angle curb, reinforced with dual mats (tension and compression,) and poured with a custom concrete formula with special admixtures to create a finished slab that is water proof for life.

2. Perimeter Steel Curb: 5/16” 50,000 kip steel 6” X 6” welded continuous angle.

3. Rebar Steel Mat: Two layers of 40,000 tensile steel rebar in varying sizes per engineers requirements, including a perimeter structural continuous grade beam design inside the exterior steel angle and at any other location deemed by the engineer of record as required for the use intended. In coastal locations or when required for corrosion resistance rebar shall be epoxy coated or fiberglass to resist permanent corrosion. Rebar mats shall be wire tied to code with a minimum of three turns of the wire and overlaps shall be minimum of 15 diameters for any connection.

4. All slab openings shall be surrounded with two layers of steel collars as required by the engineer of record to stop corner cracking and to reinforce the openings for lifting.

5. 1” thick by 3” minimum length threaded nuts shall be welded to the steel perimeter frame with continuous ¼” fillet welds. Nuts shall be welded to common steel plates per the engineer of records design and attached to the interior steel rebar structural mats.

6. The engineer of record shall provide lifting locations with sufficient reinforcement to allow the safe lifting of the entire designed weight of the structure with dual 1” steel bolts and washers at each lifting location. The number of lifting locations with each location fitted with removable ¾” 8” X 8” 50,000 tensile strength steel angles shall be determined by the engineer of record.

7. The slab shall be poured over a 1” thick steel plate table. The concrete mix design shall not exceed a 3” slump and shall be stinger vibrated for maximum consolidation. All floors shall slope to any floor drains within each room and if no floor drain is present the floor should not slope. The surface shall be a very light broom that should meet a coefficient of friction on the surface of .06. Birdbaths shall be cause for rejection.

8. The steel perimeter angle will remain below the concrete surface by nominal two inches to prevent corrosion. After the site concrete sidewalks are poured, the joint shall be full flow sealed with self-leveling grey urethane caulk to prevent penetration of water into the joint.

9. The building shall be designed for future relocation and shall provide protection for the lifting openings in the mat slab so that the threaded openings will be available for future use if needed.

10. The building system shall be designed for placement on a General Contractor/Owner site prepared class 2 building pad/and or footings as required by code, per the bid drawings, suitable for 1500 pounds soil bearing capacity minimum. Any soils survey (if necessary) shall be by owner or engineer of record.

Q. Exterior & Interior Masonry Block Walls

1. The exterior walls shall be 4” thickness per State of Louisiana codes or engineering for wind and seismic. The interior walls shall be 4” block to nominally 9’- 4” above finished floor and framed with applicable required finishes above for pony and gable walls. A structural steel tubular .188 wall cap beam shall be welded to 5/16” 40,000 kip steel plate embeds, at intervals per the engineer of record, within the masonry wall.

2. The 8” mat engineered concrete slab shall be cured a minimum of 7 days. Holes for vertical dowels shall be drilled into the mat engineered slab avoiding any grade beams or other structural reinforcement. Once the holes are drilled, blow out the remaining material and using two part structural epoxy, wet set the #3 or #4 vertical rebar (as specified on the engineering calculations into holes drilled to the depth per the engineer of record requirements. Each rebar shall be held vertical to allow equal epoxy support to each dowel during the drying period. Engineering calculations require that rebar shall be installed in each concrete block center void or every block hole. The engineered uplift on each rebar shall be sufficient to restrain any load imposed on the masonry block wall for vertical rebar pull out from the concrete mat engineered slab.

3. The block walls shall be nominal 8” x 16” CMU. The building corners shall have special corner return block that matches the exterior finish and creates a uniform appearance. All 4” CMU shall be custom fabricated with an enlarged interior hole for placement of the grout and vertical rebar.

R. Roof System

1. The flat roof structure shall be 2” x 8” wood rafters at 24” on center with 5/8” OSB sheathing and Durolast 40 mil membrane. The ceiling shall be 5/16” cement board over 5/8” OSB. Roof shall be flat with no pitch and no overhang to fit under the shelter and designed per plans with proper ventilation size openings beneath the roof structure to provide fan-free ventilation. The roof design shall exceed compliance with local code at 30 PSF live load and wind load “C”.

S. Exterior Wall Finish, Masonry and Gable

1. The building exterior finish shall be split-face and precision block (per bid drawings) 8” x 16” CMU to wall height per the exterior elevations in the bid plans. The block shall be finished with 2-4 mil layers of 7-day curing block fillers and painted with two additional 4 mil layers of industrial high-solids, industrial grade enamel, color selected by owner.

T. Interior Wall Finish:

1. Interior precision CMU block masonry walls (Restroom) shall be smoothed to a pebble grain finish with 2-4 mil layers of 7-day curing block fillers and painted with two additional 4 mil layers of industrial high solids (white) industrial grade enamel. Pony walls, and ceiling shall be wood-framed, sheared, and surfaced with fiber cement board, pattern selected by owner and painted white with industrial high solids enamel.

U. Ventilation System (Restroom)

1. Shall be woven ¼" X 1.5" X 1.5", 304T,stainless steel wire mesh set in welded stainless steel angles attached to the wall framing with vandal resistant stainless steel screws, per plans.

2. Removable bug screens will be included over the ventilation screens.

V. Doors and Gates

1. All entry doors shall be 7' 0" high, custom fabricated, 14 gauge steel; High density foam filled; reinforced with 14 gauge steel ribs welded at 6" intervals on each face, concealed; reinforced with a welded plate for door closer mounting; hung on a single continuous, 1 million cycle, aluminum gear hinge with stainless steel vandal resistant screws at nominal 4" on center. The doors shall weigh nominally 176 lbs. each for a 36" X 84" door. Custom fabricated 14 gauge steel door jambs with 4" steel heads shall be welded to the steel cap beam and be solid filled with 3000 psi masonry grout mix. All doors shall lock with a Schlage B-600 series commercial series dead bolt with interchangeable cores. The door closer shall be "LCN" heavy duty #4210 Series, fastened to a structural reinforced welded door plate per manufacturer design. Stainless steel vandal resistant fasteners shall be used on all hardware. Kick plates shall be installed on the interior side of each door.

W. Specialties

1. All specialty washroom equipment shall be commercial grade stainless steel fastened securely to walls with vandal resistant stainless steel screws to avoid removal by vandals as follows:

2. Toilet paper holder shall be a custom fabricated, covered, three-roll, 14 gauge stainless steel with lock. The angled design shall prevent vandals from standing on the top and causing damage. Toilet paper holders shall be attached to block walls with 4 epoxy bedded vandal resistant stainless steel fasteners.

3. Stainless steel grab bars to code shall be 1 ¼" minimum exposed fastener vandal resistant design and installed at each accessible water closet.

4. Cast Aluminum ADA compliant door signs shall be recessed into block surface flush with masonry exterior. Signs shall have raised pointed Braille tips and shall be blind secured with epoxy adhesive and stainless steel fasteners.

5. Hand dryers shall be energy efficient touchless Dyson Air Blade hand dryers.

X. Plumbing:

1. Building shall be fully compliant with 2010 CBC, Mechanical provisions and the following codes:

   a. All applicable State of Louisiana Building Codes. Latest edition applicable.

   b. Uniform Plumbing Code. Latest edition applicable.

2. GENERAL: All components and fabrications shall be designed to reduce life cycle maintenance, be compatible with current maintenance spare parts, and shall be listed in a spare parts/maintenance manual (two copies) delivered in utility chase of building.

3. WATER PIPING: shall be type L copper soldered per code above grade and type K with silver solder below grade. All water piping shall be designed and constructed with high and low point drain fittings. All piping shall be mounted on Uni-strut wall brackets with neoprene isolators, to code.

4. WATER PRESSURE GAUGE/VALVE COMBO: install three commercial grade industrial water pressure gauges, isolation ball valves, 150 PSI pressure regulator with wye strainer, and check valve.

5. PLUMBING FAUCETS, ISOLATION VALVES AND ACTUATORS: All fixtures except those with flush valves shall be isolated with ball valves for each fixture, concealed antimicrobial impregnated flush handle valves, and metered push-button lavatory faucets.

6. DWV PIPING: DWV piping shall be concealed behind the wall. DWV piping shall be PVC DWV, solvent welded, for all concealed piping. A cast iron no hub DWV vent pipe with a cast iron roof mounted vandal cap vent shall be required, through the roof.

7. REMOVABLE PIPE TRAPS: all floor drain, sink drain, and waste traps shall be removable for maintenance. Floor drains shall be trapped behind the wall in the utility chase using a combination waste and vent system. Floor drains shall be increased two pipe sizes over standard to allow code use. Trap primers shall not be used as preferred method of cleaning shall be by hose down maintenance. All surface mounted utility chase piping shall be mounted on Uni-strut with plastic isolators to code. Sink drain traps shall be concealed behind the utility chase walls where maintenance staff can access all plumbing.

8. PLUMBING FIXTURES: Plumbing fixtures shall be vitreous china manufactured by Zurn. Toilets shall be wall hung, rear discharge, with concealed anti-microbial lever-type flush valves. Toilet seats shall be black solid core plastic, non-flammable construction with continuous stainless steel concealed self-checking hinges. Lavatories shall have concealed remote traps behind the mechanical wall. OPTION at ADDITIONAL COST: Acorn penal grade 14 gauge stainless steel fixtures. Schedule of standard fixtures:

   a. Water Closets: Zurn Z5617-BWL

   b. Water Closet Flush Valves: Zurn Z6143AV-WS-1-B6

   c. Lavatories: Zurn Z5341 20” X 18” wall hung lavatories with Zurn Z86300 metering faucet

   d. Urinal: Zurn Z5760

   e. Urinal Flush Valve: Zurn Z6195AV-WS-1-BG

9. FLOOR GRATES: Removable 350 lbs. per square foot pultruded fiberglass non-skid floor grates shall be installed over every opening in the utility chase for OSHA protection/compliance.

10. HOSE BIB: There shall be one Woodford 24B hose bib provided in the utility chase.

Y. Electrical:

1. GENERAL: Electrical system and components shall be commercial grade or better and piping conduits shall be installed on commercial Uni-strut wall hangers. Interior and exterior electrical lighting fixtures in public areas shall provide lifetime manufacturer's warranty.

2. PANEL/WIRING: One 200 amp main industrial grade Panel Board, Square "D" QO series, shall be mounted in the concession building and one 100 amp Panel Board in the utility chase in the restroom building. All breakers shall be plug-on type, minimum 10,000 A.I.C. RMS (Sym) at 120/240 vac. Wiring shall be stranded copper wire #12 min in EMT piping with screw fittings.

3. PIPING: All piping shall be surface mounted to the masonry block walls with minimum of 2" fastener penetration. EMT conduit shall be compression type. Main panel shall maintain a 30" X 36" safety code required clear space, floor to 6' above finished floor.

4. EXTERIOR LIGHTING: Kenall, Sentinel S711D twin 13 watt vandal resistant, high-impact polycarbonate lens, compact fluorescent fixtures shall be installed per plans.

5. INTERIOR LIGHTING: Kenall, Sentinel S711D twin 13 watt vandal resistant, high-impact polycarbonate lens, compact fluorescent fixtures shall be installed per plans. The utility chase shall have a single tube, 18 watt LED fixture with a single switch at door entry.

6. LIGHTING CONTROL: All interior restroom lighting shall be controlled by a time clock mounted in the utility chase and 2 bypass switches (one for interior lighting and one for exterior lighting), so maintenance staff can check operation during daylight hours. A single photo cell, roof mounted, and shall control all exterior lighting.

7. ELECTRICAL OUTLETS: One (1) commercial spec grade duplex outlet shall be provided in the utility chase.

8. HAND DRYER: Hand dryers shall be energy efficient touchless Dyson Air Blade hand dryers.

Z. CONCESSION BUILDING EQUIPMENT: The concession building shall be per plan with the following equipment included within the building upon delivery:

1. COUNTERS: 14 gauge 304T stainless steel counters per plan.

2. 3-COMPARTMENT SINK: 1 (one) SS-3-LIN-18-2D18 Lambertson Industries, Inc, NSF-rated 3-compartment sink with two drain boards shall drain to floor sink and installed per plan. Faucet shall be Chicago 445-DJ18

3. HAND SINK: Kohler K-2005 with A/S 7500.170.002 faucet.

4. TEMPERING VALVE: Watts MMV-US-M1

5. HAND SINK SOAP DISPENSER: Bobrick B-2111

6. PAPER TOWEL DISPENSER: Bobrick B-262.

7. MOP SINK: Mustee-63M; with American Standard 8354.112 faucet and FRP Backsplash to 5' above sink to code.

8. MOP HOLDER: Pro-Flo-PF245 3-mop holder mounted to wall above mop sink.

9. FLOOR SINK: Watts FS-753-P-128, installed per plan

10. WATER HEATER: 50 gallon, 480 Volt, 11 KW, A.O. Smith DEN-52

11. FLUORESCENT LIGHTING: Lithonia DM232-120 installed per plan with a single switch at the door entry.

12. ELECTRICAL OUTLETS: Duplex and quad spec grade outlets shall be provided in the concession room per plan.

13. FLOORS: Shall be Epoxy painted and a 4" high rubber base installed.

14. WALLS: The concession walls will be framed and insulated with washable Kemply finish.

15. CEILING: Concession ceiling shall be insulated and have smooth finished sheet rock painted with white Epoxy paint.

16. CONCESSION WINDOW: Shall be Ready Access #275 low profile single panel slider, mill finish with 19 x 39 service opening with restrictor plate.

17. CONCESSION WINDOW SHUTTER: Shall be 4' 0" x 4' 0", custom fabricated, 14 gauge steel; high density foam filled; reinforced with 14 gauge steel ribs welded at 6" intervals on each face, concealed; reinforced with a welded plate for door closer mounting; hung on a single continuous, 1 million cycle, aluminum gear hinge with stainless steel vandal resistant screws at nominal 4" on center. Door shall lock with a Schlage B-600 series commercial series dead bolt and have a sweep at the bottom of the door. The shutter can be locked open to display a menu board.

18. HVAC: Friedrich 36M35 through the wall air conditioner installed.

AA. Shipping Protection

1. The building, while traveling over roads to the destination may encounter inclement weather or road grime that could require substantial cleaning when it arrives on site. The building shall be shrink-wrapped before transportation and sufficiently strong to arrive at the owner site

intact for exterior finish protection. Materials removed on site shall be disposed of and recycled by restroom building install staff.

BB. Certifications

1. Building shall be certified in compliance with the plan approval by the State of Louisiana, State Fire Marshall and shall be delivered with an applied insignia in compliance with all State regulations. The local building authority shall provide site inspections for the underground mechanical piping and final connections, footings, and access issues outside the restroom footprint. Restroom building subcontractor shall also furnish 20 year structure warranty and a 5-year component warranty, certifications for the concrete slab specification compliance, and maintenance manuals for the building and components.

**END OF SECTION 13 42 13**

# SECTION 31 10 00 - SITE CLEARING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, site utilities.
7. Temporary erosion and sedimentation control.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

### 1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

## 1.4 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

## 1.5 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Engineer.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises.

D. Utility Locator Service: Notify LA One Call: 811 (1-800-272-3020) for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.

F. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

# PART 2 - PRODUCTS

## 2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

# PART 3 - EXECUTION

## 3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

## 3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

## 3.3 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer not less than two days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Engineer's written permission.

## 3.4 CLEARING AND GRUBBING

A. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

## 3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches (1800 mm).

2. Do not stockpile topsoil within protection zones.

3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

## 3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

## 3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

**END OF SECTION 31 10 00**

# SECTION 31 20 00 - EARTH MOVING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for walks, pavements, turf and grasses, and plants.
3. Drainage course for concrete slabs-on-grade.
4. Subbase course for concrete walks and pavements.
5. Subsurface drainage backfill for walls and trenches.
6. Excavating and backfilling trenches for utilities and pits for buried utility structures.
7. Shaping berms.

### 1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification [Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487] [Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145], or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Liquid Limit: N/A

2. Plasticity Index: N/A

C. Unsatisfactory Soils: Soil Classification [Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487] [Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145], or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294/D 2940M 0; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and zero to 5 percent passing a No. 8 (2.36-mm) sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and zero to 5 percent passing a No. 4 (4.75-mm) sieve.

J. Sand: ASTM C 33/C 33M; fine aggregate.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

## 2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### 3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

### 3.3 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

### 3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

### 3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches (150 mm) in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.

2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.

3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.

4. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

## 3.6 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Engineer.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

## 3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

## 3.8 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

## 3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of subbase material free of particles larger than [1 inch (25 mm)] in any dimension, to a height of 12 inches (300 mm) over the pipe or conduit.

a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches (300 mm) over the pipe or conduit. Coordinate backfilling with utilities testing.

F. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

G. Warning Tape: Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

## 3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.

2. Under walks and pavements, use satisfactory soil material.

3. Under steps and ramps, use engineered fill.

4. Under building slabs, use engineered fill.

5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

## 3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

## 3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than [8 inches (200 mm)] in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.

2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.

3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

## 3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus [1 inch (25 mm)] .

2. Walks: Plus or minus [1 inch (25 mm)] .

3. Pavements: Plus or minus [1/2 inch (13 mm)] .

C. Grading inside Building Lines: Finish subgrade to a tolerance of [1/2 inch (13 mm)] when tested with a 10-foot (3-m) straightedge.

## 3.14 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Shape subbase course and base course to required crown elevations and cross-slope grades.

2. Place subbase course and base course 6 inches (150 mm) or less in compacted thickness in a single layer.

3. Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.

4. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95percent of maximum dry unit weight according to ASTM D 698.

## 3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course 6 inches (150 mm) or less in compacted thickness in a single layer.

2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

## 3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

## 3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

## 3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

**END OF SECTION 31 20 00**

# SECTION 32 13 13 - CONCRETE PAVING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. Section Includes Concrete Paving [.] [Including the Following:]

1. Driveways.
2. Roadways.
3. Parking lots.
4. Curbs and gutters.
5. Walks.

### 1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

C. Other Action Submittals:

1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

### 1.5 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

### 2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet (30.5 m) or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

### 2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

C. Epoxy-Coated Welded-Wire Reinforcement: ASTM A 884/A 884M, Class A, plain steel.

D. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

E. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars.

F. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars.

G. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars; assembled with clips.

H. Plain-Steel Wire: ASTM A 1064/A 1064M, [as drawn] [galvanized].

I. Deformed-Steel Wire: ASTM A 1064/A 1064M.

J. Epoxy-Coated-Steel Wire: ASTM A 884/A 884M, Class A; coated, [plain] [deformed].

K. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars[; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating]. Cut bars true to length with ends square and free of burrs.

L. Epoxy-Coated, Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars.

M. Tie Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

N. Hook Bolts: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

O. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

P. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

Q. Zinc Repair Material: ASTM A 780/A 780M.

## 2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150/C 150M, white portland cement Type I.

2. Fly Ash: ASTM C 618, Class C or Class F.

## 2.5 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C 1116/C 1116M, Type III, [1/2 to 1-1/2 inches (13 to 38 mm)].

## 2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, [Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

## 2.7 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

## 2.8 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Cementitious Materials: Use admixtures according to manufacturer’s written instructions

C. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than [1.0 lb/cu. yd. (0.60 kg/cu. m)] [1.5 lb/cu. yd. (0.90 kg/cu. m)]

D. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

E. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).

2. Maximum W/C Ratio at Point of Placement: 0.45

3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).

4. Air content 6% or +/- 15%

## 2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

## 3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

## 3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

## 3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

## 3.6 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.

C. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

D. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

E. Screed paving surface with a straightedge and strike off.

F. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

## 3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

## 3.8 SPECIAL FINISHES

A. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on paving surface according to manufacturer's written instructions and as follows:

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.

2. After curing, lightly work surface with a steel-wire brush or abrasive stone and water to expose nonslip aggregate.

## 3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing.

## 3.10 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:

1. Elevation: 3/4 inch (19 mm).

2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).

3. Surface: Gap below 10-feet- (3-m-) long; unleveled straightedge not to exceed 1/2 inch (13 mm).

4. Joint Spacing: 3 inches (75 mm).

5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.

6. Joint Width: Plus 1/8 inch (3 mm), no minus.

## 3.11 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

**END OF SECTION 32 13 13**

# SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. Section Includes:

1. Cold-applied joint sealants.
2. Hot-applied joint sealants.
3. Cold-applied, fuel-resistant joint sealants.
4. Hot-applied, fuel-resistant joint sealants.

### 1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Paving-Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

### 1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

### 1.5 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer [or are below 40 deg F (5 deg C)].

2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

### 2.2 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type NS.

B. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type SL.

C. Multicomponent, Nonsag, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25, for Use T.

### 2.3 HOT-APPLIED JOINT SEALANTS

A. Hot-Applied, Single-Component Joint Sealant: ASTM D 6690

B. Hot-Applied, Single-Component Joint Sealant: ASTM D 6690, Type I, II, or III.

### 2.4 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

### 2.5 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

### 3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backings.

2. Do not stretch, twist, puncture, or tear joint-sealant backings.

3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:

1. Place joint sealants so they fully contact joint substrates.

2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

## 3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

**END OF SECTION 32 13 73**

# SECTION 32 80 00 - SOCCER FIELD CONSTRUCTION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Work included: Provide all sand–based root zone, grass sprigs, sod, athletic field fixtures, sub-surface field drainage and related materials, supervision, labor, equipment, appliances and services necessary for and incidental to completing all operations in connection with the dressing, of earthwork areas in strict accordance with these specifications and the applicable drawings. In general, the Work shall include the construction of 7 soccer fields.

### 1.2 PROJECT SCOPE WORK

A. The general extent of the athletic field construction work is shown on the Drawings in the sections related to the construction of the soccer fields.

1. Installing, furnishing, hauling, placing, sand-based root zone; base grading, fine grading, field drainage, rolling, watering, at locations shown on the Drawings.

2. Maintenance during period of establishment (grow-in).

### 1.3 RELATED DOCUMENTS

A. Section 312000 – Earth Moving

B. Section 328400 – Field Irrigation

C. Section 329200 – Field Grassing

### 1.4 QUALITY ASSURANCE

A. Control of Work

Due to the special nature and the Critical Path Schedule of the work included in this section, the General Contractor shall utilize only qualified professional athletic field sub-contractors. It is anticipated that one sub-contractor, to be referred to as the ATHLETIC FIELD SUB-CONTRACTOR, shall be responsible for the completion all of the aspects of the construction of the soccer fields as shown on the Drawings in the sections related to the construction of the soccer fields (Sections, 312000, 328400, 329200). This shall include, but not be limited to the construction of the final sub-grade, drainage, root zone installation and grading, planting of grass, and installation of field marking systems, with the exception of the rough grading. Rough grading may be provided by others.

Documentation of the Athletic Field Sub-Contractor's qualifications meeting the criteria below shall be submitted to the Engineer for review prior to signing the contract. All potential Athletic Field Sub-Contractors shall meet the following criteria:

1. Must hold an appropriate Louisiana State General Contractors license for any work which value totals over $50,000.

2. Must meet all other local and state requirements for licensure to provide the work included in the athletic field portion of the work.

3. Must have 5 years minimum athletic field construction experience, with at least four fields completed under one contract.

4. Must submit five references of past sports field construction projects completed, of which a minimum of 3 shall be for construction of NCAA Division 1 or professional level natural grass baseball, softball, football or soccer fields.

5. Have experience with the operation of the following equipment necessary for the construction of the fields:

    a. Trench Excavation Equipment Vibratory Plow - Ditchwitch, Vermeer or approved equal.

    b. Rotary Mixer - Redexim, RotaDairon, Blecvator, STEC or approved equal

    c. Grass Sprigging – Bermuda King or approved equal

    d. Material Handling and Grading Equipment (w/ Laser Top-Con or approved equal)

        1. Sand Installation - LGP Dozer, wide track Track Skid Loader

        2. Fine grading – Minimum 10' grading blade

In addition, the qualifications of the potential Athletic Field Sub-Contractors and their proposed associated sub-contractors will be assessed by the Engineer as to their experience in the construction of sand based sports fields, and soccer field construction. Bidders shall provide information in regards to experience, staffing, and equipment inventory of their Athletic Field Sub-Contractor as listed below as part of their bid proposal:

1. A list of successfully constructed sand-based sports fields during the past 3 to 5 years, including location and references.

2. A list of sports field projects in progress or to be built during the proposed construction period for this project.

3. Written documentation in regards to the athletic field sub-contractor's personnel's experience in the construction of sand based sports fields and natural turf fields.

4. A list of equipment inventory in relation to the associated construction tasks:

    a. Laser grade equipment - type, precision, and length of time with equipment.

    b. Trench excavation equipment

    c. Irrigation installation - Placement and location of irrigation components - water lines, valves and heads.

    d. Rotary mixing equipment - Incorporation of Organic Amendments & surface stabilization fibers.

    e. Sod harvest and/or sprig harvest and placement.

    f. Grow-in and maintenance staff.

    g. Tractors and other equipment to be used for fine grading through grow-in (must include high flotation “turf tires”)

5. Documentation of the subcontractor’s licensure as required by State Law.

Potential Athletic Field Sub-Contractors may be reviewed prior to the bid date by submitting the items listed above to the Engineer. A list of all reviewed Athletic Field Sub-Contractors will be made available to all potential bidders by addendum one week prior to the bid date. Non-listed potential Athletic Field Sub-contractors will be allowed to submit qualifications after the bid date for review up to the date of signing the contract. However, non-listed companies are not guaranteed to be appropriate for this work.

All potential Athletic Field Sub-Contractors will be required to be reviewed prior to start of work.

B. Products

As required and outlined under “Part 2 - Products” below. All materials shall be submitted to the Engineer for approval. Material specification sheets or required testing shall be used to accept or reject submittals. Products for the athletic field areas are to be submitted for compliance to the specifications. Sand, gravel, and sand amendments shall be submitted to the testing agent for required testing. Upon acceptance of submitted products, the testing results will be used for future acceptance or rejection of submittals during the Quality Control Phase. No products are to be placed without approved testing and submittals. Any material placed shall be at the contractor’s risk.

C. Testing Agent: Physical Testing Agent Turf Diagnostics & Design, Inc.
613 E. First
Linwood, KS 66052
Phone: 913-723-3700
Fax: 855-769-4231
Web: www.turfdiag.com

D. References:

Testing will be conducted using these methods or references:

1. American Society for Testing and Materials (ASTM)

   a. ASTM C136 – Sieve Analysis of Fine & Coarse Aggregates

   b. ASTM D2974-00 – Standard Test Methods for Moisture, Ash and Organic Matter of Peat and Other Organic Soils

   c. ASTM F1647-02 – Standard Test Methods for Organic Matter Content of Putting Greens and Sports Field Root Zone Mixes (Method B)

   d. D2922-04 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

   e. D3665-02 – Standard Practice for Random Sampling of Construction Materials

   f. F1632-03 - Standard Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Root Zone Mixes

2. Turf Diagnostics and Design Developed Tests

   a. Saturated Hydraulic Conductivity

   b. Water Release Characterization

## 1.5 REGULATORY REQUIREMENTS AND REFERENCES

Submittals:

A. Projected Schedule: The Athletic Field Sub-Contractor shall submit a proposed schedule for the construction of the soccer fields.

B. Pre-Construction Submittals: Prior to construction, Athletic Field Sub-Contractor shall submit the following:

1. Cut-sheets or samples of all products proposed for the soccer fields.

2. Schedule of values for the completion of the soccer field work, broken down as follows: Fine grading base, drainage, irrigation, root zone (materials and installation), fine grading rootzone, grassing (sodding and sprigging), and miscellaneous.

C. Construction Submittals:

Conformance walk-through of Subgrade: Prior to placing the sand-based root zone, the Athletic Field Sub-Contractor shall perform a conformance walk-through to verify all spot elevations shown on the GRADING PLAN in the drawings over the entire soccer field subgrade. Subgrade elevations shall be equal to the proposed surface grades less 6” (.5 ft.) at areas to receive a 6” sand-based root zone. The Athletic Field Sub-Contractor shall provide laser level to provide the conformance walk-through and shall give the Engineer at least 72 hours’ notice of the time and date of the scheduled walk-through. The conformance walk-through shall be performed with the Engineer, and the Owner’s representative present. Areas out of tolerance noted for correction will be required to be corrected and may be required to provide another conformance to insure correctness, prior to placement or spreading of sand-based root zone. The subgrade must be within .5 inch plus or minus from the elevations shown on the surface grading plans less the depths for materials as stated above. The walk-through will require spot checking the grade with laser level at 25 ft. grid and at other key points as requested by the Engineer.

Conformance walk-through of Finish Grade: After placing sand-based root zone and installation of the Organic Amendments and Surface Stabilization materials, but prior to sodding or sprigging, the Athletic Field Sub-Contractor shall perform a conformance walk-through to verify spot elevations shown on the GRADING PLAN in the drawings over the entire soccer field. The Athletic Field Sub-Contractor shall provide laser level to provide the conformance walk-through and shall give the Engineer at least 72 hours’ notice of the time and date of the scheduled walk-through. The conformance walk- through shall be performed with the Engineer and the Owner’s representative present. Areas out of tolerance noted for correction will be required to be corrected and may be required to provide another conformance to ensure correctness prior to placement or spreading of sprigs.

D. Manufacturer’s Installation Instructions.

Provide copies of all manufacturers installation instructions as appropriate for specified products.

E. Post Construction Submittals:

Certification: Submit certification signed by Athletic Field Sub-Contractor and Drainage System Installer that installed materials conform to specified requirements and that system was successfully checked and tested prior to covering with drainage gravel.

F. Drawings:

1. As-built drawings indicating the location of all new piping, drain structures, and connections to existing systems. Drawings shall indicate both horizontal and vertical dimensions and inverts.

2. The conformance survey, approved by the Engineer, of the finish grade of the field elevations.

a. PROTECTION OF PROJECT SITE

Make provisions for, and take the necessary precautions to protect existing and new work from damage during the entire life of the project.

## 1.7 DELIVERY, STORAGE AND HANDLING

A. Store materials in order to prevent damage or contamination. Cracked, contaminated or otherwise damaged materials shall be removed from site.

## 1.8 PROJECT/SITE CONDITIONS

A. Work of this section shall not be executed when site conditions are detrimental to quality of work, as determined by the Engineer.

1. SEQUENCING AND SCHEDULING

Coordinate work of this section with all other work contained in the Contract Documents in order to prepare fields on a critical path for construction as follows.

CRITICAL PATH SCHEDULE:

BECAUSE OF GROWING SEASON AND INTENDED SCHEDULES FOR INITIAL USE OF THE SOCCER COMPLEX, A CRITICAL PATH SCHEDULE FOR COMPLETION IS AS FOLLOWS – IT IS REQUIRED THAT THE ROOTZONE, FIELD DRAINAGE, IRRIGATION, AND SPRIGGING OF THE SOCCER FIELDS ARE TO BE COMPLETED NO LATER THAN SEPTEMBER 15, 2015. THE SPRIGS SHALL NOT BE PLANTED ANY EARLIER THAN APRIL 15, 2016.

UNLESS OTHERWISE APPROVED BY THE ENGINEER AND THE OWNER. THE COMPLETION OF THE REMAINDER OF THE WORK MAY TAKE PLACE AFTER THE SPRIGGING IS COMPLETED. HOWEVER, IT SHALL BE THE JOINT RESPONSIBILITY OF BOTH THE ATHLETIC FIELD SUB-CONTRACTOR AND THE GENERAL CONTRACTOR TO SCHEDULE CONSTRUCTION OF THE WORK IN A MANNER THAT PUTS THE CONSTRUCTION OF THE ABOVE REFERENCED AREAS, AS OUTLINED IN THE DRAWINGS AND SPECIFICATIONS, ON A CRITICAL PATH FOR COMPLETION, READY FOR SPRIGGING BY THE DATES ESTABLISHED.

## PART 2 - PRODUCTS

### 2.1 ATHLETIC FIELD SAND-BASED ROOT ZONE AND DRAINAGE

A. POTENTIAL MANUFACTURERS / SUPPLIERS (OR EQUAL)

1. Field Drainage: Hydraway Drainage Systems OR APPROVED EQUAL Contact:

   Jim Surrell
   Hydraway Drainage Systems
   P.O. Box 23947
   Belleville, IL 62223
   Phone: 314-616-1058
   jsurrell@hydraway.net www.hydraway.net

2. Rootzone Sand: David Huval's Trucking OR APPROVED EQUAL Contact:

   David Huval
   74672 Louisiana 25
   Covington, LA 70435
   985-966-0918
   985-898-0884

3. Rootzone Sand: Bear Industries OR APPROVED EQUAL Contact:

   Darren Moore
   4323 N. River Road
   Port Allen, LA 70767
   225-383-0843
   dmoore@bear-ind.com

B. ROOT-ZONE SAND

1. Sand from local sand mining operations. The Athletic Field Sub-Contractor shall submit the proposed source of sand and a sample for testing as deemed necessary by the Engineer. The sand shall generally conform the following criteria.

| Fraction Size Name | Sieve Size US Standard (mm) | Allowable Range % Retained |
|---|---|---|
| Coarse Gravel | > 3.4 mm | 0 % |
| Fine Gravel | 3.4-2.0 mm | ≤ 1% |
| Sand | 2.0-0.05 mm | ≥ 96% |

| | | |
|---|---|---|
| Silt | 0.05-0.002 mm | ≤ 2% |
| Clay | ‹ 0.002 mm | ≤ 1% |
| Sand Gradation | | |
| Very Coarse | 2.0 – 1.0 mm | ≤ 10% |
| Coarse/Medium | 1.0 – 0.25 mm | > 70% |
| Fines | 0.25 – 0.05 mm | ≤ 20% |
| Total particles < 0.25 mm | ≤ 90% | |
| Coefficient of Uniformity (Cu) | 2.0 to 3.5 | |

C. SOIL AMENDMENT

Amending the sand with a 96:4 blend of sand and Dakota peat mix. The 96:4 sand/Dakota peat rootzone mix is to achieve a permeability rate of not less than 20.0 in/hr. and not more than 28 in/hr. Blending of the sand and Dakota peat is to take place on site.

D. SUBSURFACE DRAIN

Hydraway 2000 (or approved equal). The drain shall consist of a geotextile filter fabric heat fusion bonded to an internal high-density polyethylene (HDPE) core. The drain should be lightweight, flexible, and sufficiently durable to withstand automated and/or manual installation procedures.

1. Construction of Drain

   a. Core: High Density Polyethylene (HDPE)

   b. Length: 150 to 550 feet

   c. Widths: 6, 12, 18 or 24 inches

   d. Depth: 1" minimum

2. Geotextile Fabric: Tencate - Mirafi® 140N

   a. 4.5 ounce minimum

   b. Heat fusion bonded to the core

3. Accessories

   a. Couplers, ends, outlets adapters as required and recommended by the manufacturer.

4. Geocomposite subsurface drain system shall meet the following ASTM standards as a minimum:

ASTM STANDARDS

CORE:

- ASTM D-1621 Standard Test Methods for Compressive Properties of Rigid Cellular Plastics
- ASTM D-4716 Standard Method for Constant Head Hydraulic Flow Transmissivity (in-plane flow)of Geotextiles and Geotextile Related Products
- ASTM D-1876 Standard Test Method for Peel Resistance of Adhesives (T-Peel Test) Table 1 – Core Material Requirements
- Product Average Test Value ASTM Test Method
- Compressive Strength at maximum deflection of 20% 11,400 lbs/ft2 D1621
- Flow Rate at 10 psi and gradient of 0.1 21 gpm/ft width D4716
- Peel Strength (Fabric to Core) 50 lbs/ft width D1876

GEOTEXTILE FABRIC (4.5 oz Tencate-Mirafi® 140N or equal)

- ASTM D-4632 Standard Test Method for Grab Breaking Load and Elongation of Textiles
- ASTM D-4491 Standard Test Method for Water Permeability of Geotextiles by Permittivity
- ASTM D-4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile

Table 2 – Geotextile Fabric Requirements

a. Product Average Test Value ASTM Test Method

b. Elongation 50 % D4632

c. Grab Tensile 120 lbs D4632

d. Permeability 135 gal/min/ft2 D4491

e. Apparent Opening Size 70 U.S. Std. Sieve D4751

E. SUBSURFACE COLLECTOR DRAIN

1. Variable Height Slotted Drain Pipe:

   a. The slotted drainage pipe shall be a variable height slotted drain system. Use dual wall HDPE pipe as manufactured by Advanced Drainage Systems, Inc (or approved equal) in sizes noted on the drawings. HDPE sections shall be used; rolled slotted drainpipe is unacceptable. Corrugations may be either annular or spiral. Install as per manufacturers recommendations and as detailed on the plans.

2. Aggregate Drainage Fill

   a. Drainage Fill: Drainage fill for lateral trenches and any drainage fill in contact with Root zone sand shall be a washed and graded stone meeting the following criteria:

      Drainage Gravel: Criteria defining any stone product to be used as drainage conduit that interfaces with a root zone material such as sand. Acceptance or selection of gravel shall be done concurrently with sand or root zone selection.

| Aggregate Size U.S. Standard Sieve Mesh (mm) | Allowable Ranges % Passing Individual Sieve |
|---|---|
| ½ inch (12.5 mm) | 100% |
| 10 mesh (2.0 mm) | ≤ 10% |
| 18 mesh (1.0 mm) | ≤ 5% |

      Gravel aggregate shall be clean and dust free. The parent material shall be stable chemically and physically. Aggregate stability testing shall be determined with a sulfate soundness test, ASTM C-88, and / or an LA Abrasion Test ASTM C-131. Acceptance based on the following criteria:

| Test Method | Criteria |
|---|---|
| Sulfate Soundness | ≤12% Loss |
| LA Abrasion | ≤ 40% |

## 2.2 ATHLETIC FIELD FIXTURES

A. MANUFACTURERS/SUPPLIERS:

MarkSmart Field Marking System.

Contact: Markers, Inc.
33490 Pin Oak Parkway
Avon Lake, Ohio 44012
Phone: 866-617-6275

OR

Approved Other Equal supplier

# PART 3 - EXECUTION

## 3.1 SANDCAP BASE PREPARATION

A. For the scope of this section the Athletic Field sub-contractor shall expect a rough grade of ± 1” of the sub-base grades as indicated on the drawings generally free of organic material.

B. Remove any organic material as appropriate and discard as directed by the Engineer. Grade subgrade of all areas to receive sand-based root zone of 6 inches (.5 ft) below finish grade elevations shown on the surface grading on the soccer fields grade and slope subbase as per the grading plans.

C. Use preferred equipment appropriately to prepare the subase as follows: Trench Excavation Equipment Vibratory Plow - Ditchwitch, Vermeer or Approved equal ; Rotary Mixer - Redexim, RotaDairon, Blecvator, STEC or Approved Equal; Grading Equipment w/ Laser Top-Con or approved equal; Sand Installation - LGP Dozer, wide track Track Skid Loader; Fine grading – Minimum 10’ grading blade, LGP, wide track Dozer equipped with dual plane laser system

D. Laser grade the surface using dual plane laser grading equipment using skilled experienced grading equipment operators. Drive grading equipment in concentric circles and as otherwise needed to produce a consistent slope and subbase grades as indicated above and on the grading plans.

E. Roll the subbase to obtain a smooth compacted finish fine grade a necessary and re-roll to ensure that there are no low or high areas more than .25 inches in variation. Compacted subgrade shall achieve 98% standard proctor as per ASTM standards.

F. Install irrigation as per plans and as specified in Section 32 84 00.

G. Install subsurface drainage as per plans and as specified in this section.

H. Verification: Prior to placing sand root-zone materials, provide geotechnical test to ensure that compaction requirements are met. Provide subgrade conformance walk - thru as required in Section 1.5 – C above.

## 3.2 INSTALLATION

A. Sand-Based Root Zone: In performing this work, Athletic Field Sub-Contractor shall avoid damage to any existing structures or features of the athletic fields or features under construction, such as drainage and irrigation systems. Prior to placing the sand-based root zone material, in order to avoid the mixing of other soil and materials with the root zone material, all irrigation drainage and infield mixes shall be complete. In addition, all of the specified conformance surveys and test shall be completed and approved by the Engineer.

Grade of finish of all areas on the soccer fields as indicated on the drawings are to receive 6” sand-based root zone shall be as per the finish grade elevations shown on the surface grading and slope sub base as per the grading plans.

Laser grade the surface using dual plane laser grading equipment using skilled experienced grading equipment operators. Drive grading equipment in concentric circles and as otherwise needed to produce a consistent slope and grades as indicated on the grading plans.

Verification: Prior to placing sod or sprigging, provide finish grade conformance survey as required in section 1.5 – C above.

B. Field Marking System: Install as per manufacturer’s instructions and at dimensions as per the drawings. CONTRACTOR SHALL CONFIRM DIMENSIONS OF ALL FIELD LAYOUTS WITH THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION.

C. Subsurface Drain System: In Horizontal applications geocomposite should be placed “points down” so the grid backing is at the top, this helps to protect the drain during the initial placement and compaction of the clean rock or clean free flowing backfill.

Until the backfill is placed on the drain, ALL wheeled traffic should be kept OFF the drain lines. Once a minimum of 3- 4 inches of cover is placed, then TRACKED equipment can drive over the Hydraway lines. Tracked equipment will NOT damage the Hydraway lines as long as a minimum of 4 inches of cover is provided.

After 6 to 9 inches of cover is placed, wheeled equipment can be driven over the drain locations.

All necessary splices are to be made with connections furnished by the manufacturer or approved by the engineer in accordance with the project specifications. The geocomposite drain and

connectors should be inspected prior to backfill being placed. If the drain is found to be out of alignment or damaged, it should be removed and replaced as directed by the engineer.

The geocomposite drain shall connect to the outlet/collector pipes or may daylight for discharge by gravity. Fittings shall connect the geocomposite drain to the PVC pipe in accordance with the drain manufacture's recommendations at locations specified by the project plans.

## PART 4 - SHIPPING AND STORAGE

### 4.1

A. The Hydraway Drainage System is packaged and shipped in an opaque wrap that protects the material from dust and ultraviolet light. The manufacturer recommends that the material remain wrapped or protected from exposure to ultraviolet light and from contamination until it is installed. Hydraway shall be protected from temperatures greater than 140°F.

Each roll, or shipping unit, of drain shall be marked with a tag, or other identification label showing the product type and number and the date of manufacture.

**END OF SECTION 32 80 00**

# SECTION 32 84 00 - FIELD IRRIGATION

## PART 1 – GENERAL

### 1.1 SUMMARY

A. General Description Includes:

1. Underground irrigation system.

2. Pump station.

3. Pipe and fittings, valves, sprinkler heads, and accessories.

4. Automatic two-wire control system.

5. Excavation and backfilling for installation of underground system.

6. All necessary permits, licenses and fees.

### 1.2 SYSTEM DESCRIPTION

A. Layout design:

1. Full and complete coverage is a requirement. Contractor shall, at no additional costs to the Owner, modify layout, make necessary adjustments, as needed to obtain a full coverage areas without overthrow on roadways, pavements, structures, furniture, fountains or buildings and to protect trees and shrubs from close high spray velocity.

2. Provide flow velocities that do not exceed 5.0 ft. per second.

3. Provide irrigation of lawn areas with no overspray into planting beds or pavements, unless so designed on the drawings.

B. Only similar types of heads with matched precipitation rates may run on same zone.

C. Piping Design: Do not mix different heads for each line. Provide main size as needed for proper flow, but not less than specified on plan.

D. Provide electric solenoid controlled underground irrigation system manufactured especially for control of automatic circuit valves of underground irrigation system. Provide unit of capacity to suit number of circuits indicated.

1. Source Power: 120 volts

2. Low Voltage Controls: 24 volts AC.

E. Provide controller to control all zones.

F. The extent of the irrigation system is shown on the Drawings.

## 1.3 SUBMITTALS – REVIEW

A. Product Data: Submit manufacturer's technical data and installation instructions for all components and equipment used.

B. Shop Drawings:

1. Indicate piping layout to water source.

2. Include piping layout and details illustrating location and types of sprinkler heads, valves, control system and wiring diagram showing routes, wire sizes, wiring details and source of current and connections, and schedule of fittings.

3. Indicate location of sleeves under pavements and conflicts with existing utilities.

C. Samples

1. Submit the following material samples:

a. Piping and fittings.

b. Wire connectors and sealer.

c. Control wire.

2. Submit the following equipment samples:

a. Sprinkler heads, one of each type, complete with housing.

b. Valves and access boxes.

c. Controller.

3. Approved equipment samples will be returned to the Contractor and may be used in the work before final approval.

## 1.4 SUBMITTALS - CLOSE-OUT

A. Comply with the requirements of the General Conditions.

B. Record Drawings:

1. Prepare a map diagram showing location of all valves, lateral lines, and route of the control wires. Identify all valves as to size, station, number and type of irrigation. "As built" drawings must be approved before charts are prepared.

2. Provide one chart per controller showing the area covered by each satellite controller. The chart shall be a reduced drawing of the actual "as built" system. If controller sequence is not legible when the drawing is reduced to door size, the drawing shall be enlarged to a size that is readable and placed folded, in a sealed plastic container, inside the controller door. A second full-sized copy of each chart is to be given to the Engineer.

3. The chart shall be a photographically reproduced print with a different color used to show coverage for each station. When completed and approved, the chart shall be hermetically sealed between two pieces of clear plastic. Charts must be completed and approved prior to final inspection of the irrigation system.

4. At the time of the irrigation mainline test, provide a preliminary set of "Record" drawings to the Owner.

C. Operation and Maintenance Data:

1. Provide schedule indicating length of time each valve is required to be run to provide a determined amount of water.

2. Include complete parts list with manufacturer's designations for each component.

D. Loose Equipment to Furnish: Loose irrigation equipment, operating keys and spare parts will be furnished by the Irrigation Contractor in quantities below:

1. Two (2) quick coupler keys and matching swivel hose ells for ¾" garden hose.

2. Two (2) valve keys for gate valves.

3. Two (2) keys for each controller.

4. Two (2) of each type of sprinkler used on project, complete with housings.

## 1.5 QUALITY ASSURANCE

A. Installer's Qualifications: Single firm specializing in irrigation work with a minimum of five (5) years experience properly installing irrigation systems of comparable size. Crew leader is to hold a certification of competence in irrigation design or installation.

1. Provide references of your last five- (5) consecutive systems, and five systems of comparable size with bid proposal.

B. Multiple units: when two or more units of the same type or class of materials or equipment are required, these units are products of one manufacturer.

C. Materials, equipment, and methods of installation shall comply with the following codes and standards:

1. State of Louisiana Building Codes.

2. American Society for Testing and Materials (ASTM).

3. National Sanitation Foundation (NSF).

D. Nameplates: Nameplate bearing manufacturer's name or identification trademark securely af-fixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped, or otherwise permanently marked on each item of equipment.

E. Requirements of Regulatory Agencies:

1. All work and materials shall be in full accordance with the latest rules and regulations of safety orders of Division of Industrial Safety; the Uniform Building Code and other applicable laws or regulations, including any local Plumbing Codes.

2. Should the Contract documents be at variance with the aforementioned rules and regulations, notify the Owner for instructions before proceeding with work affected.

F. Testing:

1. Preliminary review of completed main line and wire installation will be made prior to backfilling of trenches and hydrostatic testing.

2. Final review and testing shall be made in conjunction with the final review of lawn, shrub and tree planting. The irrigation system must be operational for 14 days prior to this final inspection. Any failures are to be corrected and the testing cycle is to be repeated.

3. Contractor is to notify Engineer three (3) days prior to testing.

G. Permits and Inspections:

1. Any permits for the installation or construction of any work included under this contract, which are required by any of the legally constituted authorities having jurisdiction, shall be obtained and paid for by the contractor, each at the proper time.

2. The Contractor shall also arrange for and pay all costs in connection with any inspection and examination required by these authorities.

## 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver irrigation system components in manufacturer's original, undamaged and unopened containers, with labels intact and legible.

B. Deliver plastic pipe in bundles, packaged to provide adequate protection of pipe ends.

C. Store and handle materials to prevent damage and deterioration.

D. Provide secure, locked storage for valves, sprinkler heads and similar components that cannot be immediately replaced to prevent installation delays.

E. Contractor is responsible for materials through final acceptance.

## 1.7 PROJECT CONDITIONS

A. Protect existing trees, plants, and lawns and other features designated to remain as part of the final landscape.

B. The Contractor shall carefully coordinate with the landscape work and other site developments, including all new and existing utilities.

C. The Contractor shall verify the correctness of all finish grades within the work area to ensure the proper soil coverage of the irrigation pipes.

D. Irrigation system layout is diagrammatic. Exact location of piping, sprinkler heads, valves, and other components shall be established by Contractor in the field at time of installation.

E. Where possible sprinkler head layout should match drawings as closely as possible; field stake line and head locations for coordination with landscape contractor and approval by Engineer prior to installation. Drawings are diagrammatic to the extent that swing joints, offsets and all fittings are not shown. Lines are to be common trenched wherever possible.

F. Space sprinkler components as indicated. Do not exceed sprinkler spacing shown on Drawings.

G. Locate existing utilities in areas of work. If utilities are to remain, provide adequate means of protection during the system installation. Repair utilities damaged during the work to the satisfaction of the Utility Owner and at the Contractor's expense. Notify local Utilities Protection Service 48 hours before start of construction.

H. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, notify the Owner immediately for direction as to procedure. Cooperate with the Owner and Utility companies in keeping active services and facilities in operation.

I. Minor adjustments in system layout will be permitted to clear existing field obstruction. Final system layout shall be acceptable to the Engineer.

## 1.8 WARRANTY

A. Warranties are subject to the General Conditions and Supplementary Agreements.

B. Irrigation Contractor is responsible to insure complete coverage as specified herein of the areas to be irrigated. During the warranty period the Irrigation Contractor shall make any adjustments as necessary to maintain proper coverage.

C. The Contractor shall guarantee all parts and labor for a period of one year from the date of final inspection. If within that period settlement occurs, and adjustments in pipes, valves and sprinkler heads, lawn areas or paving are necessary to bring the system, grade or paving to the proper level of the permanent grades, the Contractor, as part of the work under his Contract, shall make all adjustments without extra cost to the Owner, including the restoration of all damaged planting, paving or other improvements of any kind.

## 1.9 OPERATION & MAINTENANCE — IRRIGATION SYSTEM

A. It is the Landscape Contractor's responsibility to determine water application rates and controller cycling. The Irrigation Contractor will coordinate system installation with planting soil placement and planting activities. The Irrigation Contractor will also instruct the Landscape Contractor on the operation and programming of the controller and will assist the Landscape Contractor as necessary in such operations throughout the one-year maintenance period. Any adjustments, re-pairs, etc., other than programming, are the total responsibility of the Irrigation Contractor.

B. As part of this contract, the Irrigation Contractor shall winterize the system the first year, and provide written instructions to the Owner for future service and maintenance. The Irrigation Contractor shall return to the site during the subsequent spring season and demonstrate to the Owner the proper procedures for the system start-up, operation and maintenance.

# PART 2 – PRODUCTS

## 2.1 UNAUTHORIZED MATERIALS

A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyl (PCB) or other hazardous materials identified by the Owner.

## 2.2 IRRIGATION SYSTEM MANUFACTURERS

A. All irrigation system components shall be supplied by regionally authorized distributors to pro-vide single source responsibility for warranty service and operations to conform to specifications in all aspects.

## 2.3 MATERIALS

A. All materials to be incorporated in this system shall be new and without flaws or defects and of quality and performance as specified and meeting the requirements of this system.

B. Plastic Pipe

1. All piping shall be from virgin parent material. The pipe shall be homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, deleterious wrinkles and dents. All pipe shall be National Sanitation Foundation (NSF) approved.

2. For all mainline piping 3” and over, use SDR 21, Class 200 gasketed PVC bell and spigot pipe.

3. For all other irrigation piping, use polyvinyl chloride (PVC) 1120 with a minimum class rating of 200, sized to maintain a maximum flow velocity of less than 5 ft. per second (FPS).

4. Outside diameter of pipe shall be the same as iron pipe.

5. Pipe shall be marked at intervals (not to exceed 5’) with the following information: Manufacturer’s name or trademark, nominal pipe size, schedule, PVC type and grade (i.e. PVC 1120), SDR rating class, working pressure at 73 degrees F. and NSF approval.

6. Caution should be utilized in handling Type I pipe due to the possibility of cracking or splitting when dropped or handled carelessly.

7. When connection is plastic to metal, male adapters shall be used. The male adapter shall be hand tightened, plus one turn with a strap wrench.

8. Comply with pipe sizes indicated on drawings. No substitution of smaller pipe will be permitted. Larger sizes may be used subject to acceptance of the Engineer. Remove damaged and defective pipe from site.

9. All PVC pipe to be furnished in 20’ lengths.

10. Acceptable Manufacturer:

    a. Silverline Plastics or approved equivalent

C. Piping for Sleeving

1. For sleeves less than six inches (6”) in size, use high impact type, polyvinyl chloride (PVC) 1120, minimum Schedule 40.

2. Sleeves six inches (6”) and above in size shall be Polyvinyl Chloride (PVC) 1120 Class 200.

3. Irrigation Contractor shall be responsible for the coordination of sleeves for all piping passing through concrete curbing, under paved areas, concrete or masonry walls and floors while the same are under construction.

4. Acceptable Manufacturer:

   a. Silverline Plastics or approved equivalent

D. PVC Fittings

1. Schedule 40 or 80, polyvinyl chloride (PVC), Type 1 injection molded fittings suitable for solvent weld or threaded connections. Fittings made of other materials are not permitted.

2. Threaded PVC nipples shall be Schedule 80. Use high quality grade of Teflon tape for threaded fittings.

   a. Saddle fittings are not permitted.

   b. Use high quality grade of Teflon tape for sprinkler head and electric remote control valve connections.

3. Acceptable Manufacturer:

   a. Spears Manufacturing or approved equivalent

E. Isolation Valves

1. Gate valves under 3” shall be 200 PSI rated W.O.G. 200 domestically manufactured with bronze bodies. Valves shall be equipped with tee handles.

2. The valve shall have a 100% urethane coated wedge insuring a bubble-tight seal up to 200 PSI. The valve shall be fusion-bonded epoxy coated with PVC push-on, threaded or me-chanical connections and a two-inch (2”) square nut for vertical valve stem key.

3. Acceptable Manufacturer:

   a. Watts Regulator or approved equivalent

F. Quick Coupling Valves

1. Valve shall be of two-piece construction with a one-inch (1”) female top thread with vinyl cover.

2. Furnish one (1) valve key fitted with one-inch (1”) swivel hose ells.

3. All quick coupling valve keys and hose swivels shall be of the same manufacturer as the quick coupler.

4. Acceptable Product:

   a. Rain Bird model 5RC or approved equivalent

G. Valve Boxes

1. Tapered rib reinforcement enclosure of rigid tensile strength plastic material components chemically inert and unaffected by moisture, ultra violet light, corrosion and temperature changes. Lid and base shall withstand normal loads exerted by turf equipment without collapsing. Box and lid to be black.

2. For remote control valves use rectangular standard turf box, 16” x 11”.

3. For Isolation valves and quick coupler valves use 9” circular turf box.

4. Acceptable Manufacturer:

   a. Rain Bird PVB series or approved equivalent

H. Long-Range Turf Rotors

1. The part or full circle sprinkler shall be a single stream, water lubricated, gear drive type.

2. Arc adjustment can be performed with or without the rotor in operation and shall require only a flat blade screwdriver.

3. The sprinkler shall have a rotating nozzle turret independent of the riser stem. The portion of the riser stem that is in contact with the wiper seal shall be non-rotating.

4. The sprinkler shall have a pressure activated, multi-function, wiper seal that will clean debris form the pop-up stem as it retracts. This wiper seal shall prevent the sprinkler from sticking in the up position, and be capable of sealing the sprinkler riser stem to the sprinkler cap under normal operating pressures.

5. The sprinkler shall have a screen attached to the drive housing to filter inlet water, protect the drive from clogging and simplify its removal for cleaning and flushing of the system.

6. The sprinkler shall have a standard rubber cover. Exposed surface diameter shall not exceed 2”.

7. The sprinkler shall have a front-loading nozzle assembly, which will allow the nozzle to be installed without a stator bushing change.

8. The sprinkler shall have a stainless steel adjusting screw capable of reducing the radius up to 25%.

9. The sprinkler shall have a standard Seal-A-Matic (SAM) device capable of holding up to ten feet (10’) of head. The sprinkler riser shall be stainless steel.

10. Acceptable Products:
    a. Rain Bird 8005-SS series rotor model or approved equivalent.

I. Automatic Controller, 2-Wire

1. The controller shall be of a hybrid type that combines electro-mechanical and microelectronic circuitry capable of fully automatic or manual operation. The controller shall be housed in a wall-mountable, weather-resistant plastic cabinet with a key-locking cabinet door suitable for either indoor or outdoor installation.

2. The controller shall have a base station capacity of 50 stations with two additional expansion slots capable of receiving modules to create a controller capacity of up to 200 stations. All stations shall have the capability of independently obeying or ignoring any weather sensor as well as using or not using the master valves. Station timing shall be from 0 minutes to 12 hours.

3. The controller shall have a Seasonal Adjustment by program which adjusts the station run time from 0 to 300% in 1% increments. The controller shall also have a Monthly Seasonal Adjustment of 0 to 300% by month. Station timing with Seasonal Adjustment shall be from 1 second to 16 hours.

4. The controller shall have 4 separate and independent programs which can have different start times, start day cycles, and station run times. Each program shall have up to 8 start times per day for a total of 32 possible start times per day. The 4 programs shall be allowed to overlap operation based on user defined settings which control the number of simultaneous stations per program and total for the controller. The controller shall allow up to 8 valves to operate simultaneously per program and total for the controller including the master valves.

5. The controller shall have a 365-day calendar with Permanent Day Off feature that allows a day(s) of the week to be turned off on any user selected program day cycle. (Custom, Even, Odd, Odd31, & Cyclical). Days set to Permanent Day Off shall override the normal repeating

schedule and not water on the specified day(s) of the week. The controller shall also have a Calendar Day Off feature allowing the user to select up to 5 dates up to 365-days in the future when the controller shall not start programs.

6. The controller shall incorporate a Rain Delay feature allowing the user to set the number of days the controller should remain off before automatically returning to the auto mode.

7. The controller shall have Cycle+Soak water management software which is capable of operating each station for a maximum cycle time and a minimum soak time to reduce water run-off. The maximum cycle time shall not extended by Seasonal Adjustment.

8. The controller shall incorporate a FloManager feature providing real-time flow, power, and station management. FloManager shall manage the number of stations operating at any point in time based on water source capacity, station flow rate, number of valves per station; user-defined simultaneous stations per program and for the controller. FloManager shall incorporate the ability to provide station priorities to determine the order in which stations shall op-erate. The controller shall ignore the station number and instead operate the highest priority stations first and the lower priority stations last when FloManager is enabled. FloManager shall be an option that is disabled by default and the controller shall operate zones in order of station number, started with the lowest numbered zone set to irrigate and ending with the highest number zone.

9. The controller shall offer Water Windows for each program. This function sets the allowed start and stop time where watering is allowed. If the watering cannot be completed by the time the Water Window closes, the stations with remaining run time are paused and watering automatically resumes when the Water Window opens the next time.

10. The controller shall include an integrated Flow Smart Module with flow sensing functionality. The Flow Smart Module shall accept sensor decoder input from 1 - 5 flow sensors with no flow scaling device required. A FloWatch Learn Flow Utility which learns the normal flow rate of each station shall be included. Each time a station runs FloWatch compares the current real-time flow rate to the learned rate and takes user-defined actions if high flow, low flow, or no flow is detected. FloWatch shall automatically determine the location of the flow problem and isolate the problem by turning off the affected station(s) or master valve(s).

11. Acceptable Product:

    a. Rain Bird ESP-LXD series or approved equivalent

J. Line Decoders

1. The factory pre-coded decoders shall be fully waterproof and have a working range shall be 0 degrees C to 50 degrees C at up to 100% humidity.

2. Decoders shall be capable of operating from one to six solenoids depending on the model specified on the Drawings

3. Four and six address decoders shall have integral surge protection.

4. Acceptable Product:

   a. Rain Bird LD series or compatible with approved controller

K. Control Wire

1. Two conductors of single strand solid copper wire type, with PVC jacket. UF 600-volt AWG #14 minimum size, approved for direct burial. For runs over 2,000 L.F. use AWG #12. Con-tractor is to verify that wire sizes are within recommended wire run lengths for proper solenoid operation.

L. Rain Shutoff

1. One device shall be provided for each controller. Install per manufacturer's latest printed instructions.

2. Verify with Engineer as to final location of rain shutoff.

3. Acceptable Product:

   a. Rain Bird RSD or approved equivalent

M. Remote Control Valves

1. The electric remote control valve shall be a normally closed 24 VAC 50/60 Hz (cycles/sec) solenoid actuated globe/angle pattern design. The valve pressure rating shall not be less than 150 PSI.

2. The valve body and bonnet shall be constructed of high-impact, water-resistant PVC for the body and glass-filled nylon for the bonnet with stainless steel screws.

3. The valve shall have manual open/close control (internal bleed) for manual opening and closing of valve without electrically energizing the solenoid. The valve's internal bleed shall pre-vent flooding of the valve box.

4. The valve shall house a fully-encapsulated, one-piece solenoid. The solenoid shall have a captured plunger with a removable retainer for easy servicing, and a leverage handle for easy turning. This 24 VAC 50/60 Hz solenoid shall open with 19.6 VAC minimum at 150 PSI. At 24 VAC, average inrush current shall not exceed 0.41 amps. Average holding current shall not exceed 0.28 amps.

5. The valve shall have a flow control stem for accurate manual regulation and/or shut off of outlet flow. The valve must open or close in less than 1 minute at 150PSI and less than 30 seconds at 20 PSI.

6. The valve construction shall provide for all internal parts to be removable from the top of the valve without disturbing the valve installation. The body shall have a removable O-ringed plug for installation in either globe or angle configuration.

7. Acceptable Product:

   a. Rain Bird model PGA or approved equivalent

N. Accessory materials

1. Drainage fill at valve boxes:

   a. Provide 1” washed pea gravel in each valve box.

2. Suitable excavated materials removed to accommodate the irrigation system work shall be used as fill materials provided it conforms to the requirements of fill as noted above.

O. PVC Solvent Cement:

1. Provide professional grade cement, Whitlam #PR32 or approved equivalent for PVC pipe and fittings.

P. PVC Primer/Cleaner

1. Provide professional grade primer/cleaner, Whitlam #PP32 or approved equivalent (purple) primer.

## PART 3 – EXECUTION

### 3.1 GENERAL

A. Lay out work as accurately as possible to Drawings. Drawings are diagrammatic to the extent that swing joints, offsets, and fittings are not shown.

B. The Irrigation Contractor shall carefully schedule his work with the Landscape Contractor and all other site developments.

C. Sleeves are required wherever piping or electrical wires are placed under paved surfaces. (Installed as part of other sections and Contract). Irrigation Contractor is responsible for coordination of all sleeves.

D. Full and completed coverage is required. Contractor shall make any necessary minor adjustments to layout as required to achieve full coverage of irrigated areas at no additional cost to the Owner.

E. Where piping is shown on drawings to be under paved areas but running parallel and adjacent to planted areas, the intent is to install piping in planted areas. Do not install directly over another line in the same trench.

F. It shall be the Contractor's responsibility to establish the location of all sprinkler heads in order to assure proper coverage of all areas. In no case shall spacing of sprinkler heads exceed distances shown on the drawings and/or those specified. Pipe sizes shall conform to those shown on drawings. No substitution of smaller pipe sizes will be permitted, but substitutions of larger sixes may be approved. All pipe damaged or rejected because of defects shall be removed from the site at the time of said rejection.

G. Install irrigation system after completion of site grading, the irrigation system shall be installed and completely operational three days prior to the installation of any planting operations.

## 3.2 POINT OF CONNECTION

A. Provide irrigation system complete from point of connection. See Drawings for Point of Connection (POC).

## 3.3 EXCAVATING

A. All piping is to be trenched, other than one inch (1"), which may be pulled.

B. Excavate to depths required to provide six inches (6") of Granular Fill bedding material under paved surfaces.

C. Should utilities not shown on the plans be found during excavations, the Contractor shall promptly notify the Owner for instructions as to further actions required. Failure to do so will make Contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities. Indicate such utility crossings on the record drawings promptly.

D. Install main line irrigation lines with a minimum cover of eighteen inches (18") and a maximum cover of twenty-four inches (24") based on finished grades.

E. Install lateral irrigation lines with a minimum cover of twelve inches (12") and a maximum cover of twenty-four inches (24") based on finished grades.

F. Perform all excavations as required for installation of work included under this Section, including shoring of earth banks, if necessary. Restore all surfaces, existing underground installations, etc., damaged or cut as a result of the excavations, to their original condition.

G. Trenches shall be open, vertical sided construction wide enough to provide free working space around work installed and to provide adequate space for backfilling and compacting.

H. When two (2) pipes are to be placed in the same trench, a six-inch (6”) space is to be maintained between the pipes. The Contractor shall not install two pipes with one directly above the other.

I. The Contractor shall cut trenches for pipe to required grade lines and compact trench bottom to prove accurate grade and uniform bearing for the full length of the line.

J. The Contractor shall be held responsible for damages caused by these operations and shall immediately repair or replace damaged parts.

## 3.4 PIPE LINE ASSEMBLY

A. General

1. Install pipes and fittings in accordance with manufacturer’s latest printed instructions.

2. Clean all pipes and fittings of dirt, scales and moistures before assembly.

3. All pipe, fittings and valves, etc., shall be carefully placed in the trenches. Interior of pipes shall be kept free from dirt and debris and when laying is not in progress, open ends of pipe shall be closed by approved means.

4. All lateral connections to the main line as well as all other connections shall be made to the side of the main line pipe. No connections to the top of the line shall be allowed.

B. Solvent-Welded Joints for PVC Pipe

1. Use solvents and methods approved by solvent and pipe manufacturers.

2. Cure joint a minimum of one hour before applying any external stress on the piping and at least twenty four (24) hours before placing the joint under water pressure, unless otherwise specified by the manufacturer. Cut all pipe with square ends and remove burrs, ridges and dirt. Check dry fit pipe and fitting. Clean pipe and fitting with purple primer and apply thin coat of cement to fitting with a liberal coat to pipe. Quickly push pipe fully into fitting using a ¼ turning motion. Hold pipe and fitting together a minimum of 30 seconds, wipe off excess with cloth.

C. Threaded Joints for PVC Pipe

1. Use Teflon tape on all threaded PVC fittings.

2. Use strap-style friction wrench only. Do not use metal-jawed wrench.

D. Laying of Pipe

1. Pipes shall be bedded in at least in at least two inches (2”) of finely divided material with no rocks or clods over one inch (1”) diameter to provide a uniform bearing.

2. Pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction. One additional foot per 100 feet of pipe is the minimum allowance for snaking.

3. Do not lay PVC pipe when there is water in the trench.

4. Plastic pipe shall be cut with PVC pipe cutters or hacksaw, or in a manner so as to ensure that a square cut. Burrs at end cuts shall be removed prior to installation so that a smooth unobstructed flow will be obtained.

5. All plastic-to-plastic joints will be solvent-weld joints or slip seal joints. All plastic pipe and fittings shall be installed as outlined and instructed by the pipe manufacturer and it shall be the Contractor’s responsibility to make arrangements with the pipe manufacturer for any field assistance that may be necessary. The Contractor shall assume full responsibility for the correct installation.

## 3.5 PVC SLEEVES AND ELECTRICAL CONDUIT

A. Provide all sleeves indicated and as otherwise required for the successful completion of the irrigation system. Coordinate sleeving efforts with General Contractor and the Owner.

B. All PVC sleeves shall be a minimum of twice (2x) the diameter of pipe to be sleeved.

C. All PVC control wire conduit shall be of sufficient size to hold the required quantity of control and common wires. Electrical wires are not to be placed in the same trench with water pipes.

## 3.6 ISOLATION VALVES

A. Shall be located in the following locations:

1. After backflow preventer and prior to main supply loop.

2. Between main line and each quick coupler valve.

3. As located on irrigation system drawings within lawn areas.

B. Install each isolation valve in an individual valve box with a six-inch (6”) (deep) layer of washed gravel below the bottom of the valve.

C. Seal threaded connections with Teflon tape.

## 3.7 IRRIGATION CONTROL VALVES

A. Coordinate location of all valve boxes with Engineer. Do not proceed in uncertainty.
B. All irrigation control valves shall be installed with ductile iron service tees.

C. Install line size bronze gate valve on pressure side of each control valve. Locate in valve box with control valve.

D. Install each electric control valve in an individual valve box with a six-inch (6”) (deep) layer of washed gravel below the bottom of the valve.

E. Seal threaded connections with Teflon tape.

F. Valves shall be installed as shown in details and in accordance with manufacturer’s instructions and specifications.

## 3.8 QUICK COUPLING VALVES

A. Shall be set a minimum of twelve inches (12”) from walks, curbs, or paved areas where applicable or as otherwise noted. Quick coupling valves shall be housed in standard size valve boxes.

B. All quick coupler valves shall be installed on to ductile iron service tee.

C. Install one inch (1”) bronze gate valve on pressure side of each quick coupler valve. Locate in valve box with quick coupler valve.

D. Valves shall be installed on a three- (3) elbow PVC Schedule 80 swing joint assembly.

E. Provide six-inch (6”) (deep) layer of washed gravel below the bottom of the valve. Top of quick coupler valves shall be as close to the top of the valve box as possible. Top of gravel layer shall be three inches (3”) below the top of the valve.

F. Quick coupling valves shall be set perpendicular to finished grade unless otherwise designated on the plans.

G. Quick coupler locations are to be staked in the field by installer for approval by Engineer prior to installation.

## 3.9 VALVE BOXES

A. Valve boxes shall be set flush with grade in lawn areas and one half inch (1/2”) above finish grade in ground cover and shrub bed areas.

B. Install valve access boxes on a suitable base of gravel to provide a level foundation at proper grade and to provide drainage of the valve box.

## 3.10 TURF ROTORS

A. All sprinkler heads shall be pop-up type heads. Permanent shrub risers are not permitted.

B. All sprinkler heads within a zone shall have matched precipitation rates.

C. Install plumb to within 1/16”, unless otherwise noted (see detail for heads on sloped areas on detail sheet). Top of collar (not nozzle) should be flush with finish grade.

D. Place part-circle pop-up sprinkler heads at least two inches (2”) and no more than six inches (6”) from edge of adjacent walks, curbs and mowing bands, or paved areas at time of installation.

E. Install pop-up sprinkler heads, and accessories in accordance with manufacturer’s latest printed instructions, except as otherwise noted.

F. All sprinkler nozzles shall be adjusted for the proper radius and direction of spray pattern. Make adjustments where possible to prevent overspraying onto walks, pavement or buildings.

G. Tighten nozzles on spray type sprinklers after installation. Adjust sprinkler adjusting screw as required for proper radius.

H. Install pop-up long-range turf rotors with PVC unitized swing joints with one-piece riser assembly. Swing joints to be factory assembled with 360 degree O-ring seals as manufactured by Lasco. All connections to be threaded, no glued connections shall be allowed on the swing joints.

I. Polyethylene swing joints are not to be used to extend head more than eighteen inches (18”) from lateral.

J. Heads to be installed at the top of a slope shall be tilted toward the toe of the slope. They shall also be installed slightly down from the top edge of the slope to decrease wind drift.

K. Mid-slope sprinkler heads shall be installed at an angle halfway between vertical and perpendicular to the slope. For example, a 2:1 or 50% slope has an angle of 26 degrees, so tilt the heads 13 degrees into the slope from the perpendicular.

L. Heads installed at the toe of the slope shall be tilted slightly away from the slope to avoid driving water into the slope directly in front of the sprinkler.

M. Do not mix different types of heads within a zone.

## 3.11 CONTROLLER

A. Mount the controller flush with the mounting surface. Controller should be level with the surface of the floor or concrete mounting pad. Install controller with display at eye-level if at all possible.

B. Mount the controller pedestal with the mounting hardware and template supplied.

C. The automatic controller shall be installed at the approximate location shown on the Drawings. (Suitable power supply will be supplied as part of other sections and Contract).

D. All local and other applicable codes shall take precedence in connecting the 110-volt electrical service to the controller.

E. Install per local code, manufacturer's latest printed instructions, and as detailed.

F. Valve control wires shall be numbered at the terminal strip.

## 3.12 CONTROLLER POWER SUPPLY

A. Power to the controller(s) shall be supplied from a dedicated circuit. (Installed as part of work of other sections and Contract).

B. The Irrigation Contractor shall be responsible for all wiring and associated equipment to connect power supply to the controller.

C. All wiring is to be in accordance with local codes. Refer to and comply with Electrical work requirements specified in Division 16.

## 3.13 CONTROL WIRING

A. All electrical equipment and wiring shall comply with local and state codes and be installed by those skilled and licensed in the trade.

B. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines whenever possible, and shall have a minimum of twelve inches (12") cover.

C. Control wires shall be installed to the side of the main line whenever possible. Placement over pipes is not permitted.

D. Where more than one (1) wire is placed in a trench, the wiring shall be taped together at intervals of twenty feet (20').

E. An expansion curl shall be provided within three feet (3') of each wire connection and at least every one hundred feet (100') of wire length on runs of more than one hundred feet (100') in length. Expansion curls shall be formed by wrapping at least five (5) turns of wire around a one-inch (1") diameter pipe, then withdrawing pipe.

F. Control wire splices at remote control valves to be crimped and sealed with specified splicing materials. Line splices will be allowed only on runs of more than five hundred (500') and they must be located in ten inch (10") round splice boxes that are green in color. The connector shall be 3M

DBY splice kit by 3M Corporation, or accepted Substitute. Use one splice per connector sealing pack.

## 3.14 CLOSING OF PIPE AND FLUSHING OF LINES

A. All testing shall be done under the supervision of the Engineer and Owner. Submit written requests for inspections to the Owner at least three (3) days prior to the anticipated inspection date.

1. Thoroughly flush out all water lines under a full head of water before installing heads, valves, quick coupler assemblies, etc. Maintain flushing for a minimum of three (3) minutes at the valve located furthest from water supply.

2. After flushing, cap or plug all openings to prevent entrance of materials that would obstruct the pipe or clog heads. Leave in place until removal is necessary for completion of installation.
3. Test as specified below.

4. Upon completion of testing complete assembly and adjust sprinklers for proper distribution.

## 3.15 TESTING

A. Make hydrostatic when welded PVC joints have cured as per manufacturer's instructions.

1. Pressurized mainlines:

a. Completely install water meter, mains, isolation valves and control valves. Do not open laterals.

b. Open all isolation valves.

c. Fill all lines with water and shut off at meter.

d. Test piping at hydraulic pressure of 70 PSIG for one-half (1/2) hour. Maximum loss shall be five (5) PSI. Locate pump at low point in line and apply pressure gradually.

e. Install pressure gage shut-off valve and safety blow-off valve between pressure source and piping. Inspect each joint and repair leaks.

f. Leaks resulting from tests shall be repaired and tests repeated until the system passes.

B. Non-pressurized laterals:

a. Test piping after laterals are installed and system is fully operational.

## 3.16 INSPECTIONS

A. The contractor shall maintain proper facilities and provide safe access for inspection to all parts of the work.

B. Irrigation inspection shall consist of a minimum of:

1. Mainline pressure test.

2. Coverage test.

3. Final irrigation inspection.

C. If the specifications, the Owner's and/or Engineer's instructions, laws, ordinances or any public authority require any work to be tested or approved, the contractor shall give the Owner three (3) days notice of its readiness for inspection.

D. The contractor shall be solely responsible for notifying the Owner and Engineer where and when such work is in readiness or testing.

E. If any work should be covered up without the approval of the Owner and Engineer it must be uncovered, if required, for examination at the contractor's expense.

F. No inspection will commence without "Record" drawings and without completing previously corrections, or without preparing the system for inspection.

## 3.17 BACKFILLING AND COMPACTING

A. After system is operating and required tests and inspections have been made, backfill excavations and trenches.

1. Restore all surfaces to match adjacent surfaces. Meet grades flush. Create smooth blends and transitions.

B. Granular fill corresponding with Section Earthwork shall be placed initially on all lines with a minimum of three inches (3") cover. No foreign matter larger than one-half inch (1/2") in size shall be permitted in the initial backfill.

1. Trenches located under paving shall be backfilled with Granular Fill corresponding with the requirements of Section Planting Soil System (three inches (3") above the pipe) compacted in layers.

2. Backfill in lawns and planting beds shall be planting soils corresponding with the requirements of Section Planting Soil System. Coordinate backfilling of planting soils with the Landscape Contractor. Care should be taken to restore the planting soil profile in accordance with the

Contract Documents. Planting soils damaged during trenching shall be dis-carded. The Engineer shall be the sole judge as to the suitability of the planting soils for reuse.

3. Surplus subgrade and planting soils remaining after backfilling shall be legally disposed of off-site by the contractor.

## 3.18 CLEANING AND DISPOSAL OF WASTE MATERIAL

A. Perform clean up during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment as fast as it accumulates.

B. Stockpile, haul from site, and legally dispose of waste materials, including unsuitable excavated materials, rock, trash, and debris.

**END OF SECTION 32 84 00**

# SECTION 32 92 00 – FIELD GRASSING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Work included: Provide all fertilizer, sod, sprigs and related materials, supervision, labor, equipment, appliances and services necessary for and incidental to completing all operations in connection with the fine grading, dressing, fertilizing, sprigging and/or sodding of earthwork areas in strict accordance with these Specifications and the applicable Drawings. In general, the Work shall include, but not be limited to the following:

1. Applying herbicide, furnishing, hauling, planting, fertilizing and liming, if required; fine grading, topsoil spreading, rolling, watering, and maintaining live grass, at locations shown on the Drawings.

2. Maintenance During Period of Establishment (grow-in).

B. Related work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Field Irrigation, and Soccer Field Construction.

### 1.2 PROJECT SCOPE WORK

A. The general extent of the field construction work is shown on the Drawings in the sections related to the construction of the soccer fields. The soccer fields shall be sprigged as per the drawings.

1. Installing furnishing, hauling, placing, sand-based root zone; fine grading, topsoil spreading, rolling, watering, at locations shown on the Drawings.

2. Maintenance During Period of Establishment (grow-in).

B. Related work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Field Irrigation, and Soccer Field Construction.

### 1.3 RELATED DOCUMENTS

A. Section 312000 – Earth Moving

B. Section 328000 – Soccer Field Construction

C. Section 328400 – Field Irrigation

### 1.4 QUALITY ASSURANCE

A. Control of Work

Due to the special nature and the Critical Path Schedule of the work included in this section, the General Contractor shall utilize only qualified professional athletic field sub-contractors. It is anticipated that one sub-contractor, to be referred to as the ATHLETIC FIELD SUB-CONTRACTOR, shall be responsible for the completion all of the aspects of the construction of the athletic fields as shown on the Drawings in the sections related to the construction of the athletic fields (Sections 312000, 328000, 328400). This shall be defined as the turf areas. This shall include, but not be limited to the construction of the final sub-grade, drainage, root zone installation and grading. Rough grading may be provided by others.

Documentation of the Athletic Field Sub-Contractor's qualifications meeting the criteria below shall be submitted to the Engineer for review prior to signing the contract. All potential Athletic Field Sub-Contractors shall meet the following criteria:

1. Must hold an appropriate Louisiana State General Contractors license for any work which value totals over $50,000.

2. Must meet all other local and state requirements for licensure to provide the work included in the athletic field portion of the work.

3. Must have 5 years minimum athletic field construction experience including at least 3 multipurpose facilities, with at least four fields completed under one contract.

4. Must submit five references of past sports field construction projects completed, of which a minimum of 3 shall be for construction of NCAA Division 1 or professional level natural grass baseball, softball, football or soccer fields.

5. Must have experience with the installation of natural turf fields.

6. Have experience with the operation of the following equipment necessary for the construction of the fields:

    6.1 Trench Excavation Equipment Vibratory Plow - Ditchwitch, Vermeer or approved equal.

    6.2 Rotary Mixer - Redexim, RotaDairon, Blecvator, STEC or approved equal

    6.3 Grass Sprigging – Bermuda King or approved equal

    6.4 Material Handling and Grading Equipment (w/ Laser Top-Con or approved equal)

        a. Sand Installation - LGP Dozer, wide track Track Skid Loader

        b. Fine grading – Minimum 10' grading blade

In addition, the qualifications of the potential Athletic Field Sub-Contractors and their proposed associated sub-contractors will be assessed by the Engineer as to their experience in the construction of sand based sports fields, and soccer field construction. Bidders shall provide information in regards to experience, staffing, and equipment inventory of their Athletic Field Sub-Contractor as listed below as part of their bid proposal:

A. A list of successfully constructed sand-based sports fields during the past 3 to 5 years, including location and references.

B. A list of sports field projects in progress or to be built during the proposed construction period for this project.

C. Written documentation in regards to the athletic field sub-contractor's personnel's experience in the construction of sand based sports fields and natural turf fields.

D. A list of equipment inventory in relation to the associated construction tasks:

1. Laser grade equipment - type, precision, and length of time with equipment.

2. Trench excavation equipment

3. Irrigation installation - Placement and location of irrigation components - water lines, valves and heads.

4. Rotary mixing equipment - Incorporation of Organic Amendments & surface stabilization fibers.

5. Sod harvest and/or sprig harvest and placement.

6. Grow-in and maintenance staff.

7. Tractors and other equipment to be used for fine grading through grow-in (must include high flotation "turf tires")

E. Documentation of the subcontractor's licensure as required by State Law.

Potential Athletic Field Sub-Contractors may be reviewed prior to the bid date by submitting the items listed above to the Engineer. A list of all reviewed Athletic Field Sub-Contractors will be made available to all potential bidders by addendum one week prior to the bid date. Non-listed potential Athletic Field Sub-contractors will be allowed to submit qualifications after the bid date for review up to the date of signing the contract. However, non-listed companies are not guaranteed approval and may be rejected by the Engineer.

A list of potentially pre-approved Athletic Field Sub-Contractors to date are listed below:

1. Schaefer-Meyer Seed-Sod Division 1, Inc.
   3910 Elm Point Road
   St. Charles, MO 63301
   Contact: Mr. David Stein
   Office: 636-947-7173
   Cell: 314-575-6674

2. Turf Solutions Group
   2414 West Nebraska Avenue
   Peoria, IL. 61604
   Contact: Mr. Jason Payne
   Phone: 877.586.1363

3. Eagle Golf & Athletics, Inc.
   2143 Arlington Blvd.
   Florence, AL 35630
   Contact: Mr. Scott Cross
   Phone: 256-765-0050

4. Munie Green Care Professionals
   1000 Milburn Rd.
   Caseville, IL 62232
   Contact: Mr. Adam Heese
   Office: 618-624-5005
   Cell: 618-779-4333

All potential Athletic Field Sub-Contractors will be required to be reviewed prior to approval

B. Products

As required and outlined under “Part 2 - Products” below. All materials shall be submitted to the Engineer for approval. Material specification sheets or required testing shall be used to accept or reject submittals. Products for the soccer field areas are to be submitted for compliance to the specifications. Sand, gravel, and sand amendments shall be submitted to the testing agent for required testing. Upon acceptance of submitted products, the testing results will be used for future acceptance or rejection of submittals during the Quality Control Phase. No products are to be placed without approved testing and submittals. Any material placed shall be at the contractors risk.

C. Testing Agent: Physical Testing Agent
Turf Diagnostics & Design, Inc.
613 E. First
Linwood, KS 66052
Phone: 913-723-3700
Fax: 913-723-3701
Web: www.turfdiag.com

D. References:

Testing will be conducted using these methods or references:

1. American Society for Testing and Materials (ASTM)

- ASTM C136 – Sieve Analysis of Fine & Coarse Aggregates
- ASTM D2974-00 – Standard Test Methods for Moisture, Ash and Organic Matter of Peat and Other Organic Soils
- ASTM F1647-02 – Standard Test Methods for Organic Matter Content of Putting Greens and Sports Field Root Zone Mixes (Method B)
- D2922-04 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- D3665-02 – Standard Practice for Random Sampling of Construction Materials
- F1632-03 - Standard Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Root Zone Mixes

2. Turf Diagnostics and Design Developed Tests

- Saturated Hydraulic Conductivity
- Water Release Characterization
- Percentage of Turf Grids

## 1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials in order to prevent damage or contamination. Cracked, contaminated or otherwise damaged materials shall be removed from site.

## 1.5 PROJECT/SITE CONDITIONS

A. Work of this section shall not be executed when site conditions are detrimental to quality of work

as determined by the Engineer.

## 1.6 SEQUENCING AND SCHEDULING

A. Coordinate work of this section with all other work contained in the Contract Documents in order to prepare fields on a critical path for construction as follows.

CRITICAL PATH SCHEDULE:

BECAUSE OF GROWING SEASON AND INTENDED SCHEDULES FOR INITIAL USE OF THE SOCCER COMPLEX, A CRITICAL PATH SCHEDULE FOR COMPLETION IS AS FOLLOWS – IT IS REQUIRED THAT THE ROOTZONE, FIELD DRAINAGE, IRRIGATION, AND SPRIGGING OF THE SOCCER FIELDS ARE TO BE COMPLETED NO LATER THAN SEPTEMBER 15, 2016. THE SPRIGS SHALL NOT BE PLANTED ANY EARLIER THAN APRIL 15, 2016.

UNLESS OTHERWISE APPROVED BY THE ENGINEER AND THE OWNER. THE COMPLETION OF THE REMAINDER OF THE WORK MAY TAKE PLACE AFTER THE SPRIGGING IS COMPLETED. HOWEVER, IT SHALL BE THE JOINT RESPONSIBILITY OF BOTH THE ATHLETIC FIELD SUB-CONTRACTOR AND THE GENERAL CONTRACTOR TO SCHEDULE CONSTRUCTION OF THE WORK IN A MANNER THAT PUTS THE CONSTRUCTION OF THE ABOVE REFERENCED AREAS, AS OUTLINED IN THE DRAWINGS AND SPECIFICATIONS, ON A CRITICAL PATH FOR COMPLETION, READY FOR SPRIGGING BY THE DATES ESTABLISHED.

# PART 2 - PRODUCTS

## 2.1 FERTILIZER

All shall be, a commercial organic starter fertilizer conforming to all applicable state fertilizer laws, shall be delivered in original, unopened containers, each bearing the manufacturer's quarantined analysis, and shall be uniform in composition, dry and free flowing. Any fertilizer that becomes wet, caked, or otherwise damaged, making it unsuitable for use, will not be accepted.

A. Homogenized 14-4-14 complete fertilizer with micronutrients at 310 lbs / acre

B. GCO Humic acid granular. Immediately before at a rate of 500 lbs / acre

## 2.2 CALCIUM SOIL CONDITIONER

A. Dolomitic Limestone at 25 lbs / 1000 s.f. (6" depth)

B. Encapsulated Gypsum Apply 20 pounds per 1000 SF prior to planting sprigs.

## 2.3 GRASS

A. Sprigs - In all areas specified on the drawings shall be Certified "Celebration" Bermuda grass sprigs and shall be certified as per the State of Louisiana regulations and the sod source shall provide documentation of genetic purity. Athletic Field Sub-Contractors shall submit documentation of genetic purity upon delivery of sprigs. Sprigs delivered to the site without documentation may be subject to rejection by the Engineer.

1. Sprigs shall be shredded to yield viable stolens and rhizomes 1.5 to 3.5 inches in length containing no less than 1 viable node. Sprigs shall have any soil removed prior to installation.

2. Sprigs shall be planted in rows at 900 bushels per acre and broadcast at a rate of 900 bushels per acre. Total sprig rate shall not be less than 900 bushels per acre.

3. Moisture Content: Sprigs shall not be harvested in a dormant state. Sprigs shall be protected from heat and excessive moisture during transport. During planting sprigs shall be protected from debris and excess heat or moisture.

4. Time Limitations: Sprigs shall be harvested, delivered and transplanted within a period of 48 hours.

5. Diseases, Nematodes, and Insects: Sprigs shall be reasonably free of diseases, nematodes, and soil-borne insects.

6. Weeds: Sprigs shall be free of objectionable grassy and broad leaf weeds, sod shall be considered free of such weeds if less than five (5) such plants are found per 100 square feet of area. Sprigs shall not be acceptable if it contains any of the following weeds: wiregrass, quackgrass, johnson grass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic or onion, ground ivy, perennial sorrel or bromegrass.

## 2.4 TOP DRESSING

A. Shall be approved sand used in construction. See Section 328000.

B. The Athletic Field Sub-Contractor shall provide two top dressings after the installation of the sod and sprigs as directed by the Engineer.

## PART 3 - EXECUTION

A. PREPARATION

1. Apply fertilizer 14-4-14 at a rate of 1 lb. of active Nitrogen per 1000 s.f. (7 lbs of product per 1000 sf).

2. Apply pre-plant application within 24 hours of sprigging.

3. Apply Humic Acid, Dolomitic Limestone, and Encapsulated Gypsum at rate prescribed above

within 24 hours of sprigging

4. Roll the entire area that is to be sodded or sprigged after the grading and pre-plant operations and sand placement have been completed as needed. If rolling indicates that there is still unevenness in the fine grading touch-up grading shall be completed by the Athletic Field Sub-Contractor to form a smooth and even grade.

B. INSTALLATION

1. Moistening Soil: During periods of higher than optimal temperatures species being specified and after all unevenness in the soil surface has been corrected, the soil shall be lightly moistened immediately prior to laying the sprigs.

2. Sprigging: Plant sprigs using an approved row planting sprigging mechanism to insure that at least 50% of sprigs are planted underground and the remaining 50% are broadcasts at the rates specified.

3. Watering: Athletic Field Sub-Contractor shall water sod and sprigs immediately after planting to prevent excessive drying during progress of the work. Sprigs shall be watered to prevent desiccation. Frequent light water shall be necessary to establish rooting. Once rooting is initiated water may be reduced in frequency. Adequate water shall be supplied to promote sprig establishment and growth.

4. The Athletic Field Sub-Contractor must take care to avoid disturbing the finish grade during sprig installation and establishment. Wheeled vehicles shall have high flotation “turf tires” and shall be rolled over board runways, and if the soil is disturbed easily, workers, likewise, must walk on board runways.

5. Roll the turf after installation with a 4 to 6 ton double wheeled roller two times, in directions perpendicular to each other, to insure contact to the root zone after laying and to insure that the finish grade is maintained. Do not roll sod under saturated conditions. Roll smooth as necessary to remove and damage to the finish grade.

6. Top dress sprigged areas 4-5 weeks after sprigging is complete.

7. Top dress sprigged areas with ¼ “of sand as directed by the Engineer after the 4-5 week time period.

C. ACCEPTANCE

1. Turf establishment shall be accepted once the field has:

2. No bare areas greater than 3 square inches in 10 square feet.

3. Roots have a depth of 2.5 inches.

4. The period of establishment after sprigging shall be 3-4 weeks and maintenance of grass areas shall consist of watering, fertilizing, weeding, cutting, top dressing, repair of any erosion and re-sprigging as necessary. The owner will take possession of certain areas as set forth in this section above at the recommendation of the Engineer.

5. A second application of fertilizer seven days after sprigging date and a third application seven days after the second application. Contractor shall water fields appropriately to avoid burning plant material.

6. Roll sprigged areas 3 weeks after sprigging as directed by the Engineer. Multiple rolling of fields may be required to obtain a smooth acceptable playing surface.

**END OF SECTION 32 92 00**

# SECTION 33 41 10 – POLYMER COATED CORRUGATED STEEL PIPE

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings.

### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

## PART 2 - PRODUCTS

### 2.1 POLYMER COATED STEEL PIPE

A. Material: The polymer coated steel coils shall conform to the applicable requirements of AASHTO M 246 or ASTM A 742.

B. Pipe: The CSP shall be manufactured in accordance with the applicable requirements of AASHTO M-245 or ASTM A 762. The pipe sizes, gauges and corrugations shall be as shown on the project plans.

C. All Fabrication of the product shall occur within the United States.

## PART 3 - EXECUTION

### 3.1 EARTHWORK

A. Excavation, trenching, and backfilling are specified LADOTD Section 726 “Bedding Material.”

### 3.2 PIPING INSTALLATION

A. Shall be in accordance with AASHTO Standard Specifications for Highway Bridges, Section 26, Division II or ASTM A 798 and in conformance with the project plans and specifications. If there are any inconsistencies or conflicts, the Contractor must bring them to the attention of the Project Engineer.

B. It is always the Contractor’s responsibility to follow OSHA Guidelines for safe practices.

C. Construction Loads may be higher than final loads. Follow the manufacturer’s or NCSPA’s guidelines.

D. Handling & Assembly: Shall be in accordance with NCSPA’s (National Corrugated Steel Pipe Association) recommendations.

## 3.3 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.

2. Defects requiring correction include the following:

   a. Alignment: Less than full diameter of inside of pipe is visible between structures.

   b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.

   c. Damage: Crushed, broken, cracked, or otherwise damaged piping.

   d. Infiltration: Water leakage into piping.

   e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.

4. Re-inspect and repeat procedure until results are satisfactory.

**END OF SECTION 32 92 00**