

INSTRUCTIONS TO BIDDERS
RFP No. 26-015
CITY OF BRENHAM HENDERSON PARK BASKETBALL COURT COVER

PART 1 – IDENTIFICATION OF PARTIES

- 1.1 OWNER: City of Brenham
 P. O. Box 1059
 Brenham, Texas 77834-1059
 Telephone: (979) 337-7250
- 1.2 ARCHITECT: BBAX Architects, LLC
 213 West Main Street
 Brenham, Texas 77833-3642
 Telephone: (979) 836-0523

PART 2 - PROJECT DESCRIPTION

2.1 LOCATION AND DESCRIPTION

- A. The project address is 804 Old N. Market Street, Brenham, Texas 77833, in Washington County.
- B. The project includes renovation of the existing basketball courts to add an open-air cover over existing basketball courts and add in new flatwork perimeter surrounds along with permanent outdoor furniture (benches).

PART 3 – INSTRUCTIONS TO BIDDERS

3.1 BIDDER'S REPRESENTATIONS

- A. By submitting a Bid, the Bidder represents that:
1. The Bidder has read and understands the Bidding Documents and has read the **City's Terms and Conditions for Bids** attached hereto as **Exhibit "A"**;
 2. The Bid complies with the Bidding Documents;
 3. The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents; and
 4. The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

3.2 BIDDING DOCUMENTS

A. Distribution

1. Bidding Documents are available through the City of Brenham's Purchasing Portal at <https://www.cityofbrenham.org/purchasing>
2. Bidding Documents are available for the sole purpose of obtaining bids on the work. No license or grant of use is conferred by distribution of the Bidding Documents.

B. Modification or Interpretation of Bidding Documents

1. The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation by submitting a Request for Information to the Architect's project manager, Darren Heine, AIA, telephone (979) 836-0523, email darren@bba-x.com at least three days prior to the date for receipt of Bids.
2. Modifications and interpretations of the Bidding Documents will be made by addendum. Modifications and interpretations of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

C. Substitutions or "Or Equal" Items

1. The materials, products, and equipment described in the Bidding Documents establish a standard of required type, function, dimension, appearance, and quality to be met by any proposed substitution or "or equal" item.
2. Written requests for substitutions of the design basis named herein shall be submitted on the **Substitution Request Form** marked **Exhibit "B"** found at the end of this section and must be received by the Architect at least five (5) calendar days prior to the date for receipt of Bids.
3. Each request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed item including drawings, datasheets, performance and test data, and any other information necessary for an evaluation.
4. The burden of proof of the merit of the proposed item is upon the proposer. With Architect's input, the Owner's decision of approval or disapproval of a proposed substitution shall be final.
5. If the Architect approves a proposed item prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.
6. No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

D. Addenda

1. Addenda will be transmitted to the Bidders holding Bidding Documents.
2. Addenda will be issued no later than two days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.
3. Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

3.3 BIDDING PROCEDURES

A. Pre-Bid Conference

1. There will be a non-mandatory pre-bid conference at Conference Room 2A, Brenham City Hall on **Tuesday, August 11, 2026 at 2:00 PM.**

B. Preparation of Bids

1. Bids shall be submitted on the **Proposal Form** included at the end of this Instructions to Bidders as **Exhibit "C"**.
2. All blanks on the bid form shall be legibly executed.
3. Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.
4. All requested Alternates, if any, shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.
5. Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract.

- C. Bid Security: Each Bid shall be accompanied by a Bid Security in the amount of five percent (5%) of the lump sum amount of the Bid, pledging that the Bidder will enter into a Contract with the Owner on the terms stated in the Bid, and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the Bid Security shall be forfeited to the Owner as liquidated damages, not as a penalty.

The Bid security of all Bidders will be retained until a Contract has been awarded and the agreement between the Owner and the successful bidder is signed or at such time that all Bids are rejected.

D. Submission of Bids

1. Due Date: Bids are due on or before **2:00 PM CDT, on Tuesday, August 18, 2026.**
2. Sealed submittals are required. Two copies of the responses are to be delivered to the Office of the City Secretary, City of Brenham, at 200 West Vulcan Street, Suite 203, Brenham, Texas 77833. Mailed proposals must be addressed to the Office of the City Secretary, City of Brenham, P. O. Box 1059, Brenham, Texas 77834-1059. Proposals must be received on or before the date and time designated for receipt of bids. The sealed envelope must contain the firm's name and address on the outside of the envelope, and be clearly marked "**RFP No. 26-015 HENDERSON PARK BASKETBALL COURT COVER**".
3. Bidder may rely on the Owner and Architect to maintain the security and confidentiality of bid submissions and bid modifications.
4. Bidder shall assume full responsibility for timely delivery and be responsible for confirming receipt by Owner and Architect.

E. Modification or Withdrawal of Bid

1. Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the parties designated to receive the Bids.

3.4 CONSIDERATION OF BIDS

- A. Opening of Bids: Bids that are properly identified and received within the specified time limits will be opened, and a summary of the Bids may be made available to the Bidders by the Architect, when directed by Owner.
- B. Rejection of Bids: Unless otherwise prohibited by law, Owner shall have the right to reject any or all Bids.
- C. Acceptance of Bid (Award):
 - 1. Bids shall be awarded to the lowest responsible bidder under the method of competitive bidding pursuant to Texas Government Code, Chapter 2269, Subchapter C, Competitive Bidding Method, and accordingly the City, in determining the award of a contract under Texas Government Code, Chapter 2269, Subchapter C, Competitive Bidding Method, may consider the criteria set forth in Texas Government Code Section 2269.055, as follows:
 - a. the price;
 - b. the offeror's experience and reputation;
 - c. the quality of the offeror's goods or services;
 - d. the impact on the ability of the governmental entity to comply with rules relating to historically underutilized businesses;
 - e. the offeror's safety record;
 - f. the offeror's proposed personnel and subcontractors/suppliers;
 - g. whether the offeror's financial capability is appropriate to the size and scope of the project; and
 - h. any other relevant factor specifically listed in the request for bids, proposals, or qualifications.
 - 2. It is the intent of the Owner to award a Contract to the Bidder whose Bid is considered most advantageous in order to obtain the best value for the City, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents.
 - 3. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

3.5 POST-BID INFORMATION

- A. Submittals: After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable, submit in writing to the Owner through the Architect:
 - 1. A designation of the Work to be performed with the Bidder's own forces;
 - 2. Names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
 - 3. Names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.
- B. Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder.

- C. Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

3.6 PERFORMANCE AND PAYMENT BONDS

- A. Bond Requirements: Bidder shall furnish performance and payment bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder in accordance with Section 1.10.C of Section 011000, Summary of Work.
- B. Time of Delivery: The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this paragraph.

3.7 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

- A. Copies of the proposed Contract Documents may be made available to the Bidder, and will consist of the following documents:
 - 1. AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor.
 - 2. AIA Document A101™–2017, Exhibit A, Insurance and Bonds.
 - 3. AIA Document A201™–2017, General Conditions of the Contract for Construction.
 - 4. Drawings as indicated on the Index of Drawings on the cover sheet
 - 5. Specifications as indicated on the Table of Contents of this Project Manual.
 - 6. Previously issued Addenda as explained in the Invitation to Bid, accompanying the Project Manual, and any future Addenda as may be issued prior to the receipt of Bids.

TERMS AND CONDITIONS FOR BIDS

Definitions:

In order to simplify the language throughout this request for bids, the following definitions shall apply:

CITY – OWNER - Same as City of Brenham.

CONTRACT - An agreement between the City and a Vendor to furnish goods or services over a designated period of time during which repeated purchases may be made of the goods or services specified.

VENDOR – The successful Bidder(s) of this bid request.

Instructions:

The following instructions apply to all bids and become a part of terms and conditions of any bid submitted to the City of Brenham Purchasing Department, unless otherwise specified elsewhere in this bid request.

Form:

Bids must be submitted on this form only. **Bidders are required to submit one (1) original and one (1) copy.** All bids submitted must be itemized with prices extended when practical. **BIDDER MUST RETURN THE ENTIRE ORIGINAL BID DOCUMENT WITH BID OR PROPOSAL.**

Bid Return:

Bid must be sealed, and to ensure proper recognition upon its arrival, list the Bid Number, Bid Description and the Bid Opening Date on the outside of your envelope.

Late Bids:

Bids must be received by the Purchasing Department prior to the time indicated on this form. Late bids will not be opened and will be returned to the bidder only upon written request.

Acceptance:

The City of Brenham reserves the right to accept or reject any or all bids, to waive any informalities and technicalities, to accept the offer considered most advantageous **in order to obtain the best value for the City.** Causes for rejection of a bid may include but are not limited to the bidder's

current violation of any City ordinance, the bidder's current inability to satisfactorily perform the work or service, or the bidder's previous failure to timely perform its obligation under a contract with the City.

Bidders may be disqualified and rejection of proposals may be recommended for any of (but not limited to) the following causes:

1. Failure to use the proposal form furnished by the Owner;
2. Lack of signature by an authorized representative on the proposal form;
3. Failure to properly complete the proposal;
4. Evidence of collusion among proposers;
5. Omission of uncertified personal or company check as a proposal guarantee **(if Bid Bond required)**; or
6. Unauthorized alteration of bid form.

Owner reserves the right to waive any informality or irregularity.

All bidders are hereby notified that the City of Brenham shall consider all factors it believes to be relevant in selecting the offer that provides the best value for the City including, but not limited to the purchase price, the proximity of the bidder as it relates to bidder's ability to perform the contract for the City, the delivery date, the reputation of the bidder and the bidder's goods or services, the quality of the bidder's goods or services, the extent to which the goods or services meet the City's needs, the impact on the ability of the City to comply with laws and rules relating to contracting with historically underutilized business and non-profit organizations employing persons with disabilities, the total long-term cost of the City to acquire the bidder's goods or services, the bidder's past performance under contracts with the City, the bidder's compliance with City ordinances, and any relevant criteria specifically listed in this request for bid.

The City is committed to obtaining its goods, products and services at the lowest price possible which benefits all citizens of Brenham. Therefore, in order to accomplish

this objective/goal, it is not the intention of the City to exclude particular vendors or manufacturers nor to create restrictive situations in its request for bids and proposals. Any manufacturer's name, trade names, brand names, catalog numbers, technical data, etc. used in the specifications are there for the sole purpose of establishing and describing general performance, quality levels, type and dimensions and such references are not intended to be restrictive. Alternate bids on similar or comparable products and/or services of any manufacturer or vendor equal to the products and/or services described in the specifications are invited and will be given careful consideration provided the alternate will accomplish the same task. The City shall be the sole judge on whether the alternate product and/or service is similar to, equal to and in compliance with that specified. The decision of the City shall be final.

Award of Contract:

The contract may be awarded either to the lowest responsible bidder or to the bidder who provides goods or services at the best value for the City. The bid award may be based on, but not necessarily limited to, the following factors:

- a. the purchase price, including payment discount terms;
- b. the reputation of the bidder and of the bidder's goods or services;
- c. the quality of the bidder's goods or services;
- d. the extent to which the goods or services meet the City's needs;
- e. the bidder's past relationship with the City;
- f. the impact on the ability of the City to comply with laws and rules relating to contracting with historically underutilized businesses and nonprofit organizations employing persons with disabilities;
- g. the total long-term cost of the City to acquire the bidder's goods or services; and
- h. any relevant criteria specifically listed in this request for bid.

The City prefers to award the entire contract to a single bidder; although, the City reserves the right to award a primary contract and a secondary contract in an effort to secure a back-up contractor to be used in emergency situations in the event the primary contractor is unable to respond as needed.

Assignment of Contract:

This contract cannot be transferred or assigned to another party without written consent of the City and may be subject to cancellation by the City if such consent is requested.

Contract Termination:

The City may terminate this Contract at any time upon thirty (30) calendar day's written notice. Upon the Vendor's receipt of such notice, the Vendor shall cease work immediately. The Vendor shall be compensated for the services satisfactorily performed prior to the termination date.

If, through any cause, the Vendor fails to fulfill its obligations under this contract, or if the Vendor violates any of the agreements of this Contract, the City has the right to terminate this Contract by giving the Vendor five (5) calendar days written notice. The Vendor will be compensated for the services satisfactorily performed before termination date. Termination of the contract for cause shall be deemed as sufficient evidence and cause to remove the Vendor's name from the bidder's list for receiving future bids.

No term or provision of this Contract shall be construed to relieve the Vendor of liability to the City for damages sustained by the City because of any breach of contract by the Vendor. The City may withhold payments to the Vendor for the purpose of setoff until the exact amount of damages due the City from the Vendor is determined and paid.

Reimbursements:

There is no expressed or implied obligation for the City to reimburse responding firms for any expenses incurred in preparing bids in response to this Request for Bids and the City will not reimburse responding firms for these expenses, nor will the City of Brenham pay any subsequent costs associated with the provision of any additional information or presentation, or to procure a contract for these services.

Minority Owned Businesses:

Minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated

against on the grounds of race, color, creed, sex, or national origin in consideration for an award.

Variations:

Any variation (deviation) from these specifications must be indicated on a separate form and be made part of the bid.

F.O.B. – Damage

Bids will not be considered unless bid F.O.B. delivered to Brenham, Texas. If shipping costs are not included in the unit bid price, bidder must give exact delivery cost, which is to be prepaid or added to the invoice. The City assumes no liability of goods delivered in a damaged or unacceptable condition.

Firm Prices:

Bidders must hold bid prices firm for 60 days after the bid opening date to allow the City sufficient time to award a contract. Once a Contract is awarded, the successful bidder must hold bid prices firm for the duration of the Contract. Sealed competitive bids may not be negotiated, amended or changed after the bid opening date.

Cooperative Agreements:

Successful bidder agrees to extend prices and terms to all governmental entities that have entered into, or will enter into, joint purchasing interlocal cooperation agreements with the City.

Authorized Signature:

Bids must show full firm name and mailing address of bidder and be manually signed by an authorized representative of the bidder. Firm name and authorized signature should appear on each page of bid where spaces are provided. Submission of a signed bid will be interpreted to mean that bidder has hereby agreed to all terms and conditions set forth in all of the sheets which make up this invitation.

Withdrawal-Alteration Of Bids:

Bids cannot be altered after receiving time or opening time. No bid may be withdrawn after opening time without acceptable reason in writing and with the approval of the City Council.

Payment Of Invoices:

Invoices must be submitted by the successful bidder to the City of Brenham, Finance Department, P.O. Box 1059, Brenham, Texas 77834-1059. All invoices to be paid in full within thirty (30) days after satisfactory delivery and billing, whichever is the latter. The City will not be liable for payment of invoices received more than sixty (60) days after delivery of order, or completion of service.

Cash Discounts:

Bidders may quote additional cash discount terms. If no discount is shown, prices are to be assumed net. Discount period to be started from the date of completion of entire order or date of receipt of invoice, whichever occurs last regardless of date of invoice.

Taxes:

The City of Brenham is exempt from Federal Excise, State Sales and Transportation Taxes. TAX MUST NOT BE INCLUDED IN BID. The City upon request will execute Tax Exemption Certificates. The City of Brenham is statutorily exempt from State and Local Sales tax and a permit number is not required.

Liability:

Vendor shall be liable for all damages incurred while in performance of the work to be performed hereunder. Vendor assumes full responsibility for the work to be performed hereunder, and hereby releases, relinquishes, and discharges the City, its officers, agents, and employees, from all claims, demands, and causes of action of every kind and character including the cost of defense thereof, for any injury to, including death of, any person whether that person be a third person, vendor, or an employee of either parties hereto, and any loss of or damage to property, whether the same be that of either of the parties hereto or of third parties, caused by or alleged to be caused by, arising out of or in connection with the issuance of this order to Vendor, whether or not said claims, demands and causes of action in whole or in part are covered by insurance. Certificate of Insurance may be required for but not limited to Commercial General Liability, Commercial Auto Liability, Workers

Compensation, and Professional Liability Insurance.

Material Safety Data Sheets (MSDS):

MSDS's must be provided prior to or with receipt of order, and when revised. Containers must be properly labeled and identified in accordance with the OSHA Hazard Communications Standard. Improperly labeled containers will result in refusal of the shipment and possible change in vendors.

Patents, Franchises, etc.:

The successful bidder agrees to protect the City from any claim involving patent right infringements, copyrights or sales franchises.

No Bids:

If bidder is unable to quote, the bid form should be returned to the purchasing agent before opening time, and reason given for not bidding if bidder desires to bid on future purchases.

Addenda:

In the event of a needed change in the published documents, it is understood that all the foregoing terms and conditions and all performance requirements will apply to any published addendum.

All published addenda shall be signed and included with your response package as acknowledgement of the addendum. Bidders are responsible for obtaining all published addenda from the City of Brenham Purchasing office. The City assumes no responsibility for the Bidders failure to obtain and/or properly submit any addendum. Failure to acknowledge and submit any addendum may be cause for the bid to be rejected. The City's decision to accept or reject any particular bid due to a failure to acknowledge and submit addenda shall be final.

Fiscal Funding:

The City operates and is funded on a fiscal year basis; accordingly, the City reserves the right to terminate, without liability, any contract for which funding is not available. Renewal of a contract will be in accordance with Local Government Code 271.903 concerning non- appropriation of funds for multi-year contracts.

The City reserves the right to rescind the contract at the end of each fiscal year if is determined that there are insufficient funds to extend the contract. The fiscal year for the City extends from October 1st of each calendar year to September 30th of the following calendar year.

H.B. 1295 Compliance:

The Vendor for the Contract shall comply with the requirements of Section 2252.908 of the Texas Government Code as adopted in 2015 as House Bill 1295. The law requires that a governmental entity may not enter in certain contracts with a business entity unless the business entity submits a Disclosure of Interested Parties to the governmental entity. The law applies only to a contract that either (1) requires an action or vote by the governing body of the entity or agency before the contract may be signed or (2) has a value of at least \$1 million.

Compliance with the law requires that the Vendor utilize the Texas Ethics Commission website to enter the required information on Form 1295 and print a copy of the complete form. The form must be signed and submitted to the contracting government entity

The City, in the case of contracts formalized by Purchase Order or by other written contract, will notify the Vendor of Award by Council and request the completed Form 1295 within five (5) working days thereafter.

Chapter 220 Compliance:

The Awarded Vendor for the contract shall comply with the requirements of Subtitle F, Title 10, Government Code Chapter 2270 and shall be required to provide confirmation that the Vendor: (1) does not boycott Israel currently; and (2) will not boycott Israel during the term of the contract. Pursuant to Section 2270.001, Texas Government Code: "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes; and "Company" means a for-profit sole proprietorship, organization, association,

corporation, partnership, joint venture, limited partnership, limited liability partnership, or any limited liability company, including a wholly-owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business associations that exist to make a profit. The City of Brenham, in the case of contracts formalized by Purchase Order or by other written contract, will notify the Vendor of Award by Council and request the required confirmation within five (5) working days thereafter. Confirmation shall, by reference, be included as a part of the contract.

on, or limit commercial relations with Israel, or with a person or entity doing business in Israel or in an Israeli- controlled territory.

Engaged in Business with Iran, Sudan, or Foreign Terrorist Organization:

Pursuant to Texas Government Code Chapter 2252, Subchapter F, Vendor affirms that it is not identified on a list created by the Texas Comptroller of Public Accounts as a company known to have contracts with or provide supplies or services to a foreign terrorist organization.

Conflict of Interest:

By doing business or seeking to do business with the City, Vendor acknowledges that they have been notified of the requirements of Chapter 176 of the Texas Local Government Code and that they are solely responsible for compliance.

Applicable Law and Venue

This Contract shall be governed by the laws of the State of Texas. The parties agree that performance and all matters related thereto shall be in Washington County, Texas and venue for any lawsuit, claim or dispute arising out of the contract shall be in Washington County, Texas. Further, neither party will seek to remove such litigation to the federal court system by application of conflicts of laws or any other removal process.

Insurance

1. The Vendor shall procure and maintain at its sole cost and expense for the duration of the Contract insurance coverage for injuries to persons or damages to property that may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, volunteers, employees or subcontractors. The Contractor's insurance coverage shall be primary insurance with respect to the City, its officials, employees and volunteers. Any insurance or self- insurance maintained by the City, its officials, employees or volunteers shall be considered in excess of the Contractor's insurance and shall not contribute to it. Further, the Contractor shall include the City as an additional insured under its policy. All coverage for subcontractors shall be subject to all of the requirements

stated herein. Certificates of Insurance and endorsements shall be furnished to the City and approved by the City before work commences.

2. Standard Insurance Policies Required:
 - a) Commercial General Liability Policy
 - b) Automobile Liability Policy
 - c) Workers' Compensation Policy
3. General Requirements Applicable to All Policies:
 - a) General Liability and Automobile Liability insurance shall be written by a carrier with an A: VIII or better rating in accordance with the current Best Key Rating Guide.
 - b) Only Insurance Carriers licensed and admitted to do business in the State of Texas will be accepted.
 - c) Deductibles shall be listed on the Certificate of Insurance and are acceptable only on a per occurrence basis for property damage only.
 - d) "Claims Made" policies will not be accepted.
 - e) The City of Brenham, its officials, employees and volunteers, are to be added as "Additional Insured" to the General Liability policy. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officials, employees or volunteers.
 - f) A Waiver of Subrogation in favor of the City with respect to Workers' Compensation Insurance must be included.
 - g) Each insurance policy shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City.
 - h) Upon request, certified copies of all insurance policies shall be furnished to the City.
4. Commercial General Liability
 - a) Minimum Combined Single Limit of \$1,000,000.00 per occurrence for bodily injury and property damage.
 - b) No coverage shall be deleted from the standard policy without notification of individual

exclusions being attached for review and acceptance.

5. Automobile Liability
 - a) Minimum Combined Single limit of \$500,000.00 per occurrence for bodily injury and property damage.
6. Worker's Compensation
 - a) Statutory
7. Certificates of Insurance shall be prepared and executed by the insurance company or its authorized agent. And shall contain the following provisions and warranties:
 - a) The company is licensed and admitted to do business in the State of Texas.
 - b) The insurance policies provided by the insurance company are underwritten on forms that have been provided by the Texas Board of Insurance.
 - c) All endorsements and insurance coverage according to requirements and instructions contained herein.
 - d) The form of the notice of cancellation, termination, or change in coverage provisions to the City of Brenham.
 - e) Original endorsements affecting coverage required by this section shall be furnished with the certificates of insurance.

Workers' Compensation Provisions
(State law requires the following language in
contracts on public works projects).

DEFINITIONS:

Certificate of Coverage (certificate) – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the Project – includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the City.

Persons providing services on the project ("subcontractor" in 406.096) – includes all persons or entities performing all or part of the services the Contractor has undertaken to perform

on the project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitations, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnished persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other services related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, that meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the project, for the duration of the project.

The Contractor must provide a certificate of coverage to the City **prior** to being awarded the contract.

If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the City showing that coverage has been extended.

The Contractor shall obtain from each person providing services on a project, and provide to the City:

- a. a certificate of coverage, prior to that person beginning work on the project, so the City will have on file certificates showing coverage for all persons providing services on the project; and
- b. no later than seven calendar days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration

of the project.

The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

The Contractor shall notify the City in writing by certified mail or personal delivery, within ten (10) calendar days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation commission, informing all persons providing services on the project that they are required to be covered and stating how a person may verify coverage and report lack of coverage.

The Contractor shall contractually require each person with whom it contracts to provide services on a project, to:

- (a) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, that meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
- (b) provide to the Contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on a project, for the duration of the project;
- (c) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- (d) obtain from each person with whom it contracts, and provide to the Contractor:
 1. a certificate of coverage, prior to the person beginning work on the project; and
 2. a new certificate of coverage showing the extension of coverage, prior to the end of the coverage period, if the coverage

period shown on the current certificate of coverage ends during the duration of the project.

- (e) retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter;
- (f) notify the City in writing by certified mail or personal delivery, within ten (10) calendar days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
- (g) contractually require each person with whom it contracts, to perform as required by paragraphs (a) – (g), with the certificates of coverage to be provided to the person for whom they are providing services.

By signing the contract, or providing, or causing to be provided a certificate of coverage, the Contractor is representing to the City that all employees of the Contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor that entitles the City to declare the contract void if the contractor does not remedy the breach within ten (10) calendar days after receipt of notice of breach from the City.

SUBSTITUTION REQUEST

(During the Bidding/Negotiation Stage)

Project: Henderson Park Basketball Court Cover Substitution Request #: _____
To: BBAX Architects, LLC From: _____
Re: _____ Date: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Phone: _____
Trade Name: _____ Model #: _____

Attached data includes product description, specifications, drawings, photographs, and performance/test data adequate for evaluation of the request with applicable portion of the data clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____
Firm: _____
Address: _____
Telephone: _____

A/E's REVIEW AND ACTION

- ☐ Substitution approved: Make submittals in accordance with Specification Section 012500 Substitution Procedures.
- ☐ Substitution approved as noted: Make submittals in accordance with Specification Section 012500 Substitution Procedures.
- ☐ Substitution rejected: Use specified materials.
- ☐ Substitution Request received too late: Use specified materials.

Signed by: _____ Date: _____

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

FORM OF PROPOSAL

Date: _____

TO: City of Brenham
200 West Vulcan Street, Suite 203
Brenham, Texas 77833

We submit herewith our Proposal for the renovation of the amenities at Henderson Park Basketball Court, located at 804 Old N. Market Street in Brenham, Washington County, Texas.

1. BASE BID PROPOSAL. Having carefully examined all the Contract Documents, including Addenda Numbered _____, and having visited the site and examined all conditions affecting the work, the undersigned proposes to furnish all labor, materials, transportation, services, and equipment necessary and/or reasonably required to properly execute the Work included in the Bid Documents and to provide a complete and operable project, for the following amount ("Base Bid"):

Dollars (\$_____).

2. COSTS FOR GENERAL CONDITIONS ALLOWED TO THE GENERAL CONTRACTOR. The maximum cost of general conditions for change orders after the contract has been awarded is _____ percent (_____ %).

3. COMPLETION OF WORK. If the undersigned be notified of the acceptance of this Proposal within sixty (60) days after the above date, he agrees to execute a Contract for the above work for the above stated compensation, in the form of the Standard Agreement of the American Institute of Architects, and to guarantee the completion of the work in _____ (_____) calendar days after the award of the Contract.

4. ALTERNATES. The above Base Bid may be changed in accordance with any or all of the following Alternate Bid items as Owner may elect.

ADD

DEDUCT

Alternate #1: See Section 012300 for all Alternate Bid Items _____

COMPANY NAME: _____

BY: _____ Signature: _____
printed name

Bidder's Address: _____

Bidder's Telephone Number: _____

PROJECT MANUAL

FOR

HENDERSON PARK BASKETBALL COURT COVER

Brenham, Texas

Project Architect:

BBAx Architects, LLC
Member American Institute of Architects
213 West Main Street
Brenham, Texas 77833-3642

Structural Engineer:

Drew Dudley, PE
6102 Imperial Loop Drive
College Station TX 77845
Tel: (979) 777-0720
www.dudleyeng.com

PROJECT MANUAL

FOR

HENDERSON PARK BASKETBALL COURT COVER

Brenham, Texas

BBAX Architects, LLC
Member of the American Institute of Architects
Brenham, Texas

**TABLE OF CONTENTS
ARCHITECTURAL SECTIONS**



07/16/2026

SECTION NUMBER AND TITLE	NUMBER OF PAGES
DIVISION 0 - PROCUREMENT AND CONTRACTING REQUIREMENTS	
003132 Geotechnical Data + Report	30
DIVISION 1 - GENERAL REQUIREMENTS	
011000 Summary	4
012100 Allowances [NOT USED]	
012300 Alternates	5
012500 Substitution Procedures	3
012600 Contract Modification Procedures	2
012900 Payment Procedures	4
013100 Project Management and Coordination	4
013300 Submittal Procedures	7
014000 Quality Requirements	7
014200 References	11
015000 Temporary Facilities and Controls	7
016000 Product Requirements	5
017300 Execution	8
017700 Closeout Procedures	4
017839 Project Record Documents	3
DIVISION 2 - EXISTING CONDITIONS	
024119 Selective Structure Demolition	4
DIVISION 3 - CONCRETE	
031000 Board-Formed Concrete	8
<i>For Cast in Place Concrete refer to Structural Engineer's notes</i>	
DIVISION 4 - MASONRY	
None in this Project	
DIVISION 5 - METALS	
<i>Refer to Division 13 – Special Construction for prefabricated steel arch building system</i>	
DIVISION 6 - WOOD, PLASTICS, AND COMPOSITES	
None in this Project	
DIVISION 7 - THERMAL AND MOISTURE PROTECTION	
None in this Project	

DIVISION 8 - OPENINGS
None in this Project

**TABLE OF CONTENTS
ARCHITECTURAL SECTIONS**

SECTION NUMBER AND TITLE	NUMBER OF PAGES
DIVISION 9 - FINISHES None in this Project	
DIVISION 10 - SPECIALTIES <i>See drawings for Signage and refer to Alternate bid items</i>	
DIVISION 11 - EQUIPMENT None in this Project	
DIVISION 12 - FURNISHINGS None in this Project	
DIVISION 13 - SPECIAL CONSTRUCTION 133419 Prefabricated Steel Arch Building System	13
DIVISION 14 - CONVEYING EQUIPMENT None in this Project.	
DIVISION 22 - PLUMBING None in this Project	
DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING <i>See drawings for design basis and refer to Alternate bid items</i>	
DIVISION 26 - ELECTRICAL <i>See drawings for design basis and refer to Alternate bid items</i>	
DIVISION 31 - EARTHWORK <i>See Structural Drawings for subgrade preparation notes</i>	
DIVISION 32 - EXTERIOR IMPROVEMENTS <i>See Architectural and Structural drawings</i>	
DIVISION 33 - UTILITIES <i>See drawings</i>	

SECTION 003132 - GEOTECHNICAL DATA

1.01 GEOTECHNICAL DATA

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents.

1.02 GEOTECHNICAL REPORT

- A. A report of geotechnical study for the Project, prepared by Dudley Engineering LLC under Dudley Project No. 25-00384 and dated December 9, 2025, is available for viewing as appended to this Document.
 - 1. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.

END OF SECTION 003132



DUDLEY

REPORT OF GEOTECHNICAL STUDY

**HENDERSON PARK BASKETBALL PAVILION
804 OLD N MARKET
BRENHAM, TEXAS**

PREPARED FOR
CITY OF BRENHAM

PREPARED BY
DUDLEY ENGINEERING LLC

REPORT DATE
DECEMBER 9, 2025

DUDLEY PROJECT NO.
25-00384



December 9, 2025

City of Brenham
200 West Vulcan Street
Brenham, Texas 77833

Attention: Mr. Dane Rau, Director of Public Works

Re: Report of Geotechnical Study for
Henderson Park Basketball Court Pavilion
804 Old N Market,
Brenham, Texas

Dear Mr. Rau:

Dudley Engineering LLC (DUDLEY) is pleased to submit the accompanying report documenting the results of a geotechnical study performed for the proposed basketball court pavilion addition at Henderson Park in Brenham, Texas.

This report presents the findings of the subsurface investigation and laboratory testing program, along with foundation recommendations and design parameters developed from the study results.

We sincerely appreciate the opportunity to be of service on this project. Please do not hesitate to contact us at (979) 777-0720 with any questions or if we may provide additional assistance. We look forward to continuing our work with you on future projects.

Sincerely,

Dudley Engineering LLC
Texas Engineering Firm Registration No. F-18677

G. Taylor Stinson

G. Taylor Stinson, PE, MS
Principal

T. Kowshik Kumar

T. Kowshik Kumar, EIT, MS
Graduate Geotechnical Engineer



Seal Date: 12/9/2025



TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	OVERVIEW	1
1.2	PROJECT DESCRIPTION	1
1.3	SCOPE OF SERVICES	1
2.0	SUBSURFACE INVESTIGATION	3
2.1	BORING DESIGNATION AND LOCATION	3
2.2	DRILLING AND SAMPLING	3
2.3	BORING LOGS	3
2.4	SAMPLE CUSTODY	4
3.0	LABORATORY TESTING PROGRAM	5
4.0	SITE CONDITIONS	6
4.1	SURFACE CONDITIONS	6
4.2	SUBSURFACE CONDITIONS	6
4.3	WATER LEVEL OBSERVATIONS	6
5.0	ANALYSIS	8
5.1	STRENGTH	8
5.2	VOLUMETRIC STABILITY	8
5.3	SEISMIC LOADING CONDITIONS	9
6.0	FOUNDATION RECOMMENDATIONS	11
6.1	EXPANSIVE SOIL CONSIDERATIONS	11
7.0	DRILLED PIER DESIGN PARAMETERS	12
7.1	GENERAL	12
7.2	AXIAL LOADING CONDITIONS	12
7.3	UPLIFT LOADING CONDITIONS	12
7.4	LATERAL LOADING CONDITIONS	12
8.0	CONSTRUCTION CONSIDERATIONS	15
8.1	STRIPPING AND CLEARING	15
8.2	DRILLED PIERS	15
8.3	GENERAL FILL REQUIREMENTS	16
9.0	BASIS OF RECOMMENDATIONS	17

LIST OF TABLES

Table 1.	Laboratory Classification Testing Procedures	5
Table 2.	Summary of Laboratory Classification Test Results	5
Table 3.	Seismic Design Parameters	10



Table 4. Drilled Pier Axial Load Design Parameters 12

Table 5. Drilled Pier LPILE Design Parameters 14

Table 6. General Fill Requirements 16

LIST OF ATTACHMENTS

- Attachment A Figures
- Attachment B Boring Logs



1.0 INTRODUCTION

1.1 OVERVIEW

This report was prepared by Dudley Engineering LLC (DUDLEY) for the City of Brenham to document the results of a geotechnical study performed for the proposed basketball court pavilion addition at Henderson Park. The geotechnical study was performed in accordance with DUDLEY's Agreement dated November 20, 2025 and was accepted on the same day.

The subsurface investigation was initiated on November 24, 2025, and was completed on the same date. The laboratory testing program was initiated shortly after the completion of drilling operations and was completed on December 8, 2025. A description of the subsurface information compiled during the field and laboratory phases of the project and an outline of DUDLEY's interpretation of the information is presented in this report for your review and consideration.

1.2 PROJECT DESCRIPTION

The project consists of the addition of a pavilion to the existing basketball court at Henderson Park in Brenham, Texas. Detailed design information is not yet available; however, BBA Architects, LP. has indicated that the pavilion will be similar to the previous pavilion project that DUDLEY completed for the City of Brenham.

Based on our review of the preliminary grading plans for the project, the variation in the existing ground surface across the basketball court appears to be 1 foot or less. DUDLEY should be notified if this is incorrect because it may result in changes to the recommendations presented in this report.

1.3 SCOPE OF SERVICES

The scope of services associated with the current geotechnical study included the following:

- ***Task 1 – Subsurface Investigation:*** Secure information on subsurface conditions at the project site by drilling two (2) exploratory borings.



- ***Task 2 – Laboratory Testing Program:*** Perform laboratory tests on select soil samples recovered from the borings to aid in characterizing the subsurface materials.
- ***Task 3 – Engineering Analysis and Report Preparation:*** Evaluate the information developed from the subsurface investigation and laboratory testing program so that geotechnical recommendations and design parameters can be furnished for the proposed pavilion.



2.0 SUBSURFACE INVESTIGATION

2.1 BORING DESIGNATION AND LOCATION

Two (2) borings were drilled for the project. The borings were designated as B-1 and B-2 as illustrated on Figure 2 in Attachment A of this report. The borings illustrated on Figure 2 were established by the drilling crew using a recreational hand-held global positioning system (GPS) device. The ground surface elevation at each boring was not specifically measured during drilling operations.

2.2 DRILLING AND SAMPLING

The borings were drilled with a Mobile B-57 drilling rig. The borings were advanced dry with flight augers so that water levels could be monitored during and immediately after the completion of drilling operations. Soil samples were collected in accordance with ASTM D1586 – *Standard Test Methods for Standard Penetration Tests (SPT) and Split-Barrel Sampling of Soil*. Furthermore, SPT sampling utilized an automatic hammer. Furthermore, SPT sampling utilized an automatic hammer, which generally has a higher energy transfer efficiency than traditional SPT equipment, i.e., safety hammers. The energy transfer ratio of the automatic hammer was not specifically evaluated as part of the current investigation; however, it is generally assumed to be 1.33 times more than that recorded using a standard safety hammer.

Both borings were advanced 25 feet below the existing ground surface. Therefore, 50 linear feet of drilling was associated with the project. Representative soil samples were obtained at 2-foot intervals within the upper 10 feet of the stratigraphy. Below a depth of 10 feet, samples were collected at 5-foot intervals to the 25-foot termination depth of drilling.

2.3 BORING LOGS

The subsurface materials encountered at the borings were continuously logged in the field by a trained representative of DUDLEY. Following removal from the samplers, the soils were visually classified in accordance with ASTM D2488 – *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)* and a color description was assigned using the Munsell Soil Color chart. Pocket penetrometer readings were also taken on cohesive



and cohesive-granular soil samples recovered from the borings to estimate strength. This information is summarized in Attachment B on the boring log. A key to the terms and symbols used on the boring logs is also presented in Attachment B immediately after the boring logs.

The boring logs represent our present evaluation of the subsurface materials encountered at the project site based on observations and classification of the materials in the laboratory. The lines designating the interfaces between different soil types/formations are approximate and may be more gradual or more distinct. Variations will naturally occur and should be expected across the project site.

2.4 SAMPLE CUSTODY

Samples obtained as part of the subsurface investigation are and remain the property of the City of Brenham (client). Unless other arrangements are requested by the client and mutually accepted by DUDLEY in writing, DUDLEY will dispose of the samples ten (10) days after the date of this report. Samples consumed by laboratory testing procedures were discarded immediately after testing.



3.0 LABORATORY TESTING PROGRAM

The laboratory testing program was oriented in obtaining additional information on select soil samples recovered from the borings so that the soils could be classified in accordance with ASTM D2487 – *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*. The specific tests performed as part of the laboratory testing program, along with the number of each test, are summarized below in Table 1.

Table 1. Laboratory Classification Testing Procedures

ASTM Designation	Test Description	Number of Tests Performed
ASTM D1140	Standard Test Methods for Determining the Amount of Material Finer than 75- μ m (No. 200) Sieve in Soils by Washing	9
ASTM D2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass	9
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	9

The results of the laboratory tests are illustrated on the boring logs found in Attachment B of this report. In addition, the results are summarized below in Table 2. Soils that were not specifically tested in the laboratory were classified in accordance with ASTM D2488 – *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)* and based on similarities with soil samples that were tested in the laboratory.

Table 2. Summary of Laboratory Classification Test Results

Material Finer than No. 200 Sieve (%)	Moisture Content (%)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
15.4 – 70.7	5.4 – 23.1	29 – 61	16 – 21	13 – 40



4.0 SITE CONDITIONS

4.1 SURFACE CONDITIONS

Based on observation made during drilling operations, the project area is mostly vegetated by short grasses that surround the existing basketball court. A large tree is also located immediately southeast of the existing basketball courts. There did not appear to be any obvious surface features, such as open bodies of water or drainage channels, within the project area. However, a concrete lined channel is present immediately to the west of the project area.

4.2 SUBSURFACE CONDITIONS

The subsurface conditions encountered at the borings are presented in detail on the boring logs found in Attachment B of this report. The boring logs should be reviewed for a detailed description of the stratigraphy encountered at each boring. In summary, the subsurface stratigraphy consisted of clays and sands. The clays were classified as either CH type soils (high plasticity or fat clays) or CL type soils (low plasticity or lean clays) under the Unified Soil Classification System (USCS). The consistency or strength of the clays was estimated to be stiff. The sands were classified as SC type soils (clayey sands) under the USCS. The relative density of the sands was estimated to be medium dense.

4.3 WATER LEVEL OBSERVATIONS

Perched water or groundwater was not encountered at both borings during drilling; however, groundwater was observed at both borings immediately after completion of drilling at depths of about 20 feet below the ground surface. Historic groundwater observations at the project site during drilling have been as shallow as 15 feet (August 12, 2021).

The boreholes were subsequently backfilled with soil cuttings, and as a result, long-term water level readings could not be obtained for the project. It should be noted that subsurface water levels might change and can vary with seasonal rainfall patterns, long-term climate fluctuations, and with the influence of local site conditions. Therefore, the absence or presence of water during the subsurface investigation does not mean that subsurface water



will not be present or will be present at the same depth during construction or over the design life of project.



5.0 ANALYSIS

Key considerations in the design of structures in this geographical area include: (1) the strength characteristics of the foundation soils, (2) the volumetric stability or potential shrink/swell movements of the foundation soils, and (3) seismic loading conditions for the project area. Each of these considerations is addressed in more detail in the following subsections based on the information compiled during the subsurface investigation and laboratory testing program.

5.1 STRENGTH

In general, the soils encountered at the boring locations exhibited enough strength to support the loads typically associated with a one-story metal pavilion. Therefore, strength and settlement will not be a primary consideration for these proposed project elements. However, it should be recognized that weak surficial soils may be encountered during construction if construction operations are initiated during or shortly after significant rainfall events. If weak surficial soils are encountered at the time of construction, the soils should be removed from the work area and replaced with acceptable general fill material.

5.2 VOLUMETRIC STABILITY

5.2.1 Moisture and Movement Active Zone

The moisture active zone was estimated for the project site based on unsaturated soil mechanics and typical changes in climatic conditions for the Brenham, Texas area. Based on these considerations and the soils encountered at the boring locations, the moisture active zone was estimated to extend approximately 12 feet below the existing ground surface.

The design movement active zone is almost always shallower than the moisture active zone. Based on unsaturated soil mechanics and horizontal flow, the design movement active zone was estimated to extend approximately 6 feet below the existing ground surface. Assumptions related to the estimated depth of the movement active zone include the following: (1) measures are taken to protect against ponding of water at the ground surface and lateral flow of water from on and off site and (2) protections must be implemented against accidental subsurface leaks, such as the lining of pressurized utility lines and an associated subsurface drainage system above the poly sheeting or the installation of devices to



continuously monitor leaks and shut off water supply as needed. Failure to address these measures and/or protections could result in deep-seated swells below the estimated movement active zone and could result in volumetric movements greater than those estimated in the following subsections of this report.

5.2.2 Shrink/Swell Potential

Calculations were performed to estimate the magnitude of total potential swell movements in the subsurface soils based upon Texas Department of Transportation (TxDOT) Test Method Tex-124-E (Updated January 2017). Under this methodology, the magnitude of swell movement is referred to as potential vertical rise (PVR). Based upon the soils encountered in the estimated movement active zone, PVR was computed to be approximately **1.5 inches** or less for the dry-to-wet condition.

Calculations were also performed to estimate the magnitude of potential shrink/swell movements in the subsurface soils based upon the methodology outlined in the 3rd Edition of the Post-Tensioning Institute (PTI) publication entitled *Design of Post-Tensioned Slabs-on-Ground*. Under this methodology, potential unrestrained differential soil movements were estimated to be approximately **1.0 inches** or less for the post-construction center-lift condition, i.e., wet-to-dry conditions, and **1.5 inches** or less for the post-construction edge-lift condition, i.e., dry-to-wet condition. The estimated movements did not consider the presence of perimeter vertical moisture barriers.

5.3 SEISMIC LOADING CONDITIONS

Based on the soils encountered at boring locations and our experience with soils generally encountered in the upper 100 feet of the stratigraphy in this geographic area, Site Class D is recommended for the project site. Table 3 summarizes basic seismic design parameters that were determined based on the Site Class, the project location, and the provisions outlined in ASCE/SEI 7-16 – *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*.



Table 3. Seismic Design Parameters

Parameter	Description	Value
S_s	MCE_R ground motion (period = 0.2s)	0.064 g
S_1	MCE_R ground motion (period = 1s)	0.038 g
S_{DS}	Numeric seismic design value at 0.2s SA	0.069 g
S_{D1}	Numeric seismic design value at 1s SA	0.061 g



6.0 FOUNDATION RECOMMENDATIONS

6.1 EXPANSIVE SOIL CONSIDERATIONS

Based on the soils encountered at the boring locations and the anticipated column reactions for the pavilion, spread footings or drilled piers could be considered for foundation support of the proposed pavilion. However, the construction of spread footings may interfere with the existing basketball court. Furthermore, the spread footings would have to be founded a sufficient depth below the existing ground surface to minimize potential expansive soil movements acting on the base of the spread footings. As a result, drilled pier foundation elements are the recommended method for foundation support of the proposed pavilion. The following section provides specific design parameters for the drilled pier foundation elements.



7.0 DRILLED PIER DESIGN PARAMETERS

7.1 GENERAL

The drilled pier foundation elements shall be designed in accordance with applicable building code requirements to resist all potential axial, uplift, and lateral loading conditions. Design parameters for these loading conditions are provided in the following subsections.

7.2 AXIAL LOADING CONDITIONS

Design parameters for axial loads, i.e., downward loads, acting on the drilled pier foundation elements are provided below in Table 4.

Table 4. Drilled Pier Axial Load Design Parameters

Founding Depth	10 feet below existing ground surface
Minimum Shaft Diameter	12 inches to facilitate cleaning and inspection
Founding Formation	Varies – Stiff, fat clays or Medium dense, clayey sands (reference boring logs for color description)
Allowable Unit Base Resistance ^{Note 1}	7,500 psf (maximum loading conditions, FS = 2)
	5,000 psf (sustained loading conditions, FS = 3)
Allowable Unit Side Resistance	Disregard
Pier Configuration ^{Note 2}	1:2 (shaft-to-bell ratio)
Pier Settlement ^{Note 3}	Maximum settlement: 1.0-inch or less
	Differential settlement: 0.75-inch or less

Table 4 Notes:

1. Assumes drilled piers will have a minimum spacing of three (3) pier end diameters, center to center. For spacings of one (1) pier end diameter, multiply allowable resistance values by 0.5. Interpolation can be used for spacings between one (1) and three (3) pier diameters.
2. Assumes that reinforcing steel and concrete will be placed in the drilled pier excavations shortly after drilling. Temporary casing or slurry displacement may be required to prevent sloughing of granular side walls.
3. Based on a maximum bell diameter of 5 feet and sustained loading conditions.

7.3 UPLIFT LOADING CONDITIONS

The drilled piers may have to be belled or underreamed to minimize movements associated with uplift forces. These uplift forces will predominately be associated with



environmental loading conditions, such as those from wind; however, uplift forces due to soil-to-pier adhesion may also develop. Uplift loading associated with wind or other environmental loading conditions can be evaluated using the following equation.

$$Q_a = \frac{\pi s_u (B_b^2 - B_s^2) N_u}{8} + \frac{\gamma_c V_T}{1.2} + \frac{W_{DL}}{1.2}$$

where:

Q_a = allowable uplift resistance of the pier, in pounds

s_u = average undrained shear strength above base of pier, in pounds per square foot (psf) (use 1,500 psf)

N_u = 4 for a maximum bell diameter of 5 feet

B_s = diameter of shaft, in feet

γ_c = unit weight of concrete in drilled pier, in pounds per cubic foot (pcf)

V_T = total volume of drilled pier (pier shaft and bell), in cubic feet

W_{DL} = dead load transmitted to pier, in pounds

DUDLEY also evaluated potential uplift movements of the drilled piers due to soil-to-pier adhesion acting on the upper portion of the shafts. This evaluation considered pier movement in an elastic medium based on soil-pier slip and a 1:2 shaft to bell ratio. Based on the evaluation, potential uplift movements in the pier were estimated to be approximately 0.75-inch or less.

Tensile forces generated on the upper 6 feet of the pier shafts due to soil-to-pier adhesion were estimated to be approximately 800 psf and should also be accounted for when designing the longitudinal steel for the drilled pier foundation elements. This tensile force may be disregarded for portions of the pier embedded in select fill.

7.4 LATERAL LOADING CONDITIONS

Table 5 provides LPILE design parameters that can be used to evaluate lateral loading conditions acting on the drilled piers. The design parameters presented in Table 5 assume that the piers will have a minimum clear spacing of six (6) pier diameters. If closer spacings are required, P-multipliers should be applied to the static soil modulus. At a spacing of three (3) pier diameters, the adjusted soil modulus can be estimated by multiplying the static soil modulus by 0.6. For trailing piers in a line at three (3) diameters spacing, a P-multiplier of 0.4 should be used. Linear interpolation can be used for pier spacings between three (3) and six



(6) diameters. Piers spaced closer than three (3) pier diameters should not be relied upon for lateral resistance.

Table 5. Drilled Pier LPILE Design Parameters

Layer	Elevation	Stratum Description	Average Undrained Shear Strength	Effective Unit Weight	Static Soil Modulus	Soil Strain E50
1	Ground surface to 10 ft	Stiff clay above water table	1,500 psf	125 pcf	500 pci	0.007



8.0 CONSTRUCTION CONSIDERATIONS

8.1 STRIPPING AND CLEARING

Any vegetation existing within the pavilion foundation areas prior to construction shall be removed. In addition, any remaining organic matter and topsoil, as well as any weak, wet, or silty soils, shall be stripped and removed from these areas. The removal of the vegetation should include all roots, including the major root systems associated with large trees, both currently existing as well as previously existing on the site. The removal of the major root systems should include any desiccated soils present within the root bulbs of the trees. If the existing vegetation and organic materials are not removed from the project area, it is possible that the existing vegetation will interfere with the proposed construction and could potentially adversely impact the future performance of the proposed pavilion.

8.2 DRILLED PIERS

The construction of deep pier foundation elements should conform to the procedures outlined in The Deep Foundations Institute, Drilled Shaft Inspector's Manual, Second Edition, 2004, or a more current edition if applicable, and also as outlined in the Federal Highway Administration Publication No. FHWA-NHI-10-016 entitled "Drilled Shafts: Construction Procedures and LRFD Design Methods." In addition, the following criteria should be followed during design and construction of the drilled piers.

- The drilled pier excavations should be checked to ensure that the shaft size, and founding depths specified on the plans have been achieved. Verification of the construction process and the dimensional characteristics of the piers should be performed as part of the project quality assurance (QA) program.
- The drilled pier excavations should be inspected to ensure that all loose material greater than 3 inches dimension and all standing water over 2 inches depth have been removed prior to placement of the concrete. Precautions should be taken during placement of the reinforcement and concrete to prevent any loose excavated soil from entering the excavation.
- Prompt placement of concrete into the pier excavation, as soon as the drilling is completed and the excavation cleaned and inspected, is strongly recommended. Under no circumstances should a pier be drilled that cannot be filled with concrete before the end of the workday or prior to the occurrence of a significant rainfall event.



There is always a possibility that groundwater will enter the open pier excavations at the project site and will cause excessive sloughing of the pier excavation sidewalls. Therefore, the contractor should be prepared to use casing to ensure the integrity of the excavation and to permit pouring of pier concrete in a dry condition.

8.3 GENERAL FILL REQUIREMENTS

General fill placed for the project areas should meet the material and compaction requirements outlined below in Table 6. Compaction characteristics of the general fill shall be verified by in-place density tests. The tests should be performed on each 6-inch-thick lift at an average rate of one (1) test for every 2,000 square feet of plan area for the building pad. A minimum of three (3) tests should be performed for each distinct lift of fill.

Table 6. General Fill Requirements

Unified Soil Classification System (USCS)	Plasticity Index (PI)	Compaction Standard	Density ^{Note 1}	Moisture Content ^{Note 2}
SC, CL or CH	15 to 30, inclusive	ASTM D698	$\geq 95\% D_A$	W_{OPT} to $W_{OPT} + 4.0\%$, inclusive

Table 6 Notes:

1. Maximum dry density (D_A) determined in accordance with ASTM D698.
2. Optimum moisture content (W_{OPT}) determined in accordance with ASTM D698



9.0 BASIS OF RECOMMENDATIONS

The subsurface information at the site was developed from the subsurface investigation and laboratory testing program and was based upon two (2) widely spaced borings across the project site. The borings were in enough detail and scope to form a reasonable basis for the conceptual planning and design of the foundation system for the proposed pavilion described in this report. Recommendations contained in this report were developed based upon a generalization of the subsurface conditions encountered at the boring locations across the site and the assumption that the generalized conditions are continuous throughout the areas under consideration. However, regardless of the thoroughness of a subsurface exploration, there is always a possibility that subsurface conditions encountered over a given area will be different from those present at specific, isolated boring locations. As a result, actual site conditions may be better or worse than the conditions indicated at the boring locations.

DUDLEY warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional engineering practice in the field of geotechnical engineering in this geographic area. No other warranty is implied or expressed.

The information presented in this report was presented for the specific site and the specific structure described in the report. The information should not be employed for the design of other structures or for other projects in the general area of this project without the written consent of DUDLEY.



ATTACHMENT A

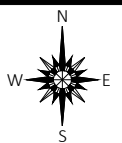
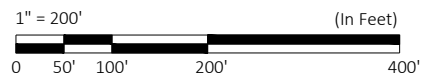
Figures

- Figure 1 – Vicinity Map
- Figure 2 – Plan of Borings



Notes:

Scale:



Vicinity Map

Henderson Park Basketball Pavilion

Brenham, Texas

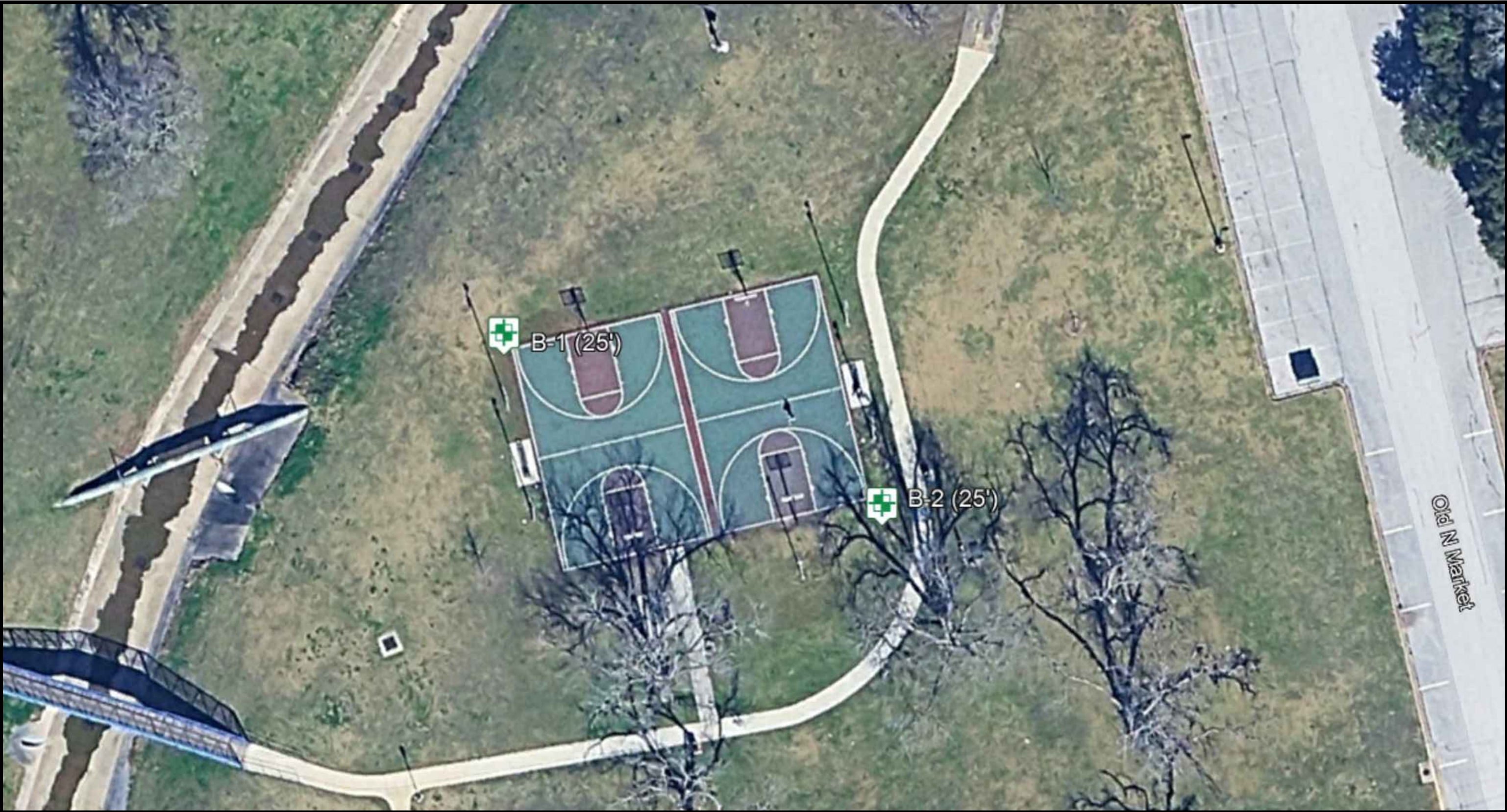
Source: Google Maps (2025)

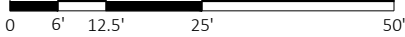
Drawn By: TKK

Date: 12/8/2025

Project No.: 25-00384

Figure 1



Key:  B-X (X') Boring Location, Designation, & Depth		Scale: 1" = 25' (In Feet) 	Notes: 	Plan of Borings Henderson Park Basketball Pavilion Brenham, Texas							
					<table border="1"><tr><td colspan="2">Source: Google Earth (2025), Aerial Date: 1/2025</td></tr><tr><td>Drawn By: TTK</td><td>Date: MM/DD/YYYY</td></tr><tr><td>Project No.: 25-00XXX</td><td>Figure 2</td></tr></table>	Source: Google Earth (2025), Aerial Date: 1/2025		Drawn By: TTK	Date: MM/DD/YYYY	Project No.: 25-00XXX	Figure 2
Source: Google Earth (2025), Aerial Date: 1/2025											
Drawn By: TTK	Date: MM/DD/YYYY										
Project No.: 25-00XXX	Figure 2										



ATTACHMENT B

Boring Logs

Log of Borings B-1 and B-2

Boring Log Key



LOG OF BORING

Henderson Park Basketball Pavilion
804 Old N Market
Brenham, Texas

Project No.: 25-00384

Page 1 of 1

Location: B-1
Drill Date: 11/24/2025
Surface Elevation: Unknown

Depth (ft)	Sample	USCS Abbreviation	USCS Symbol	Water Level	MATERIAL DESCRIPTION	Field Strength Data				Moisture Content (%)	Atterberg Limits			Gradation (%)			Natural Moisture Content & Atterberg Limits			Addt'l Laboratory Tests & Remarks			
						PP Reading (tsf)	SPT N-Value (blows/ft)	TCP N-Value (blows/ft)	PP Reading (tsf)				Liquid Limit	Plastic Limit	Plasticity Index	Passing #4 Sieve	Passing #40 Sieve	Passing #200 Sieve	Natural Moisture Content & Atterberg Limits				
									1.0 2.0 3.0 4.0										Plastic Limit		Moisture Content	Liquid Limit	
									▲ SPT N-Value (blows/ft) ▲														
						20 40 60 80																	
						◆ TCP N-Value (blows/ft) ◆																	
						20 40 60 80																	
0		SC			Medium dense, dark grayish-brown, clayey SAND, dry	4.5+	17			7.1	39	17	22			31.3	● X X						
		SC				4.5+	15			8.0	37	17	20			43.6	● X X						
5		CL			Stiff, dark grayish-brown, sandy, lean CLAY, slightly moist	4.0	6			14.1	46	18	28			53.5	● X X						
		CH			Stiff, black, fat CLAY, with sand, slightly moist	4.5+	7			23.1	61	21	40			70.7	● X X						
						4.0	10																
10																							
					Medium dense, light brown, clayey SAND, moist	3.0	13																
15																							
		SC				3.5	10			13.2	29	16	13			15.4	● X X						
20				▼	-moist below 20'																		
						1.5	10																
25					Boring terminated at 25'																		

Sample Key:

Split-Spoon (SPT)

Shelby Tube

Texas Cone

Disturbed

No Recovery

Water Level Symbols:

During Drilling

▼

 After Drilling

Water Level During Drilling (ft): Not Present

Water Level After Drilling (ft): 20

Notes:

1. Boring drilled with Mobile B-57 Drill Rig.

2. Drilling Method: Flight Auger.

3. SPT - Automatic hammer (140 lb).



LOG OF BORING

Henderson Park Basketball Pavilion
804 Old N Market
Brenham, Texas

Project No.: 25-00384

Page 1 of 1

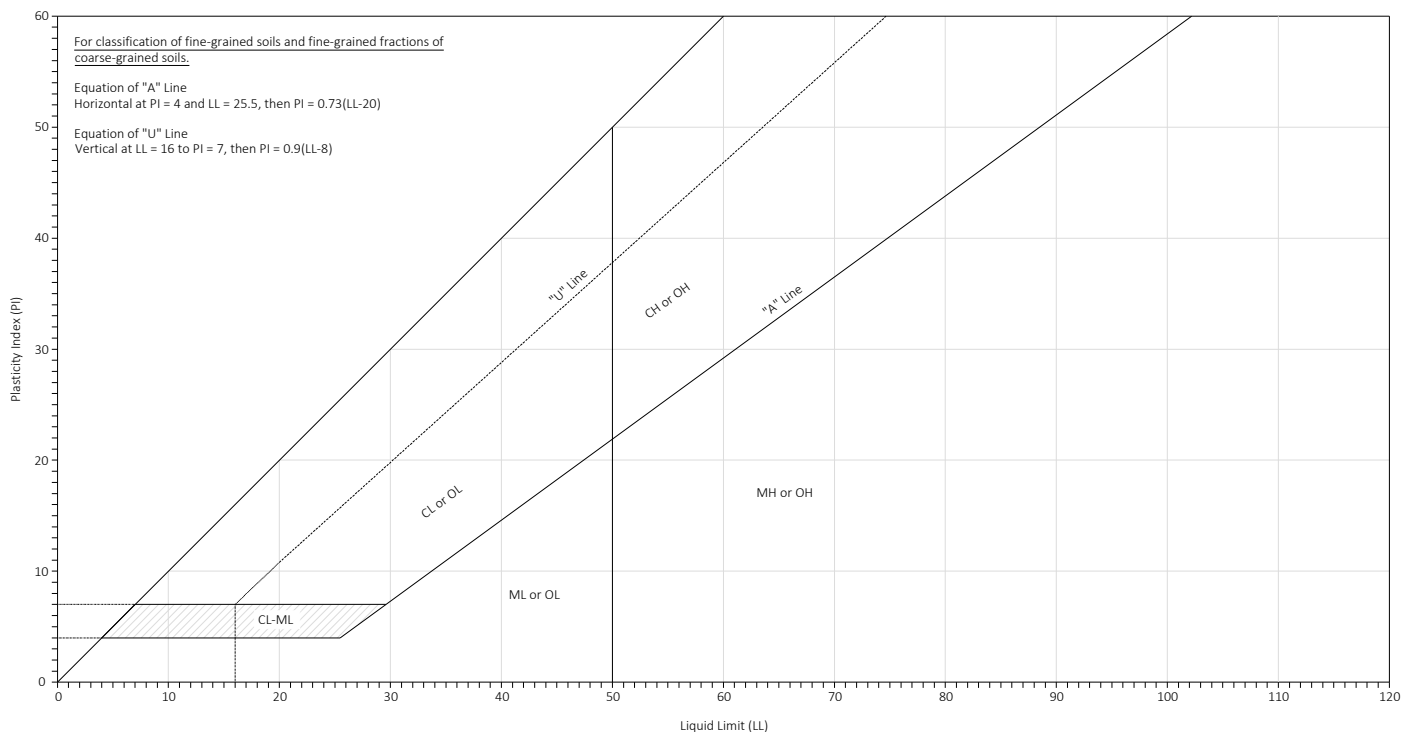
Location:	B-2
Drill Date:	11/24/2025
Surface Elevation:	Unknown

Depth (ft)	Sample	USCS Abbreviation	USCS Symbol	Water Level	MATERIAL DESCRIPTION	Field Strength Data				Moisture Content (%)	Atterberg Limits			Gradation (%)			Natural Moisture Content & Atterberg Limits			Add'l Laboratory Tests & Remarks			
						PP Reading (tsf)	SPT N-Value (blows/ft)	TCP N-Value (blows/ft)	PP Reading (tsf)				Liquid Limit	Plastic Limit	Plasticity Index	Passing #4 Sieve	Passing #40 Sieve	Passing #200 Sieve	Natural Moisture Content & Atterberg Limits				
									1.0		2.0	3.0							4.0		Plastic Limit	Moisture Content	Liquid Limit
									20		40	60							80		X		X
20	40	60	80																				
0		SC			Medium dense, dark brown, clayey SAND, with rootlets dry						11.6	44	18	26			48.8	● X — X					
		SC			-light brown below 2'	3.0	12		▲	●	5.4	36	17	19			19.4	● X — X					
5						4.5+	18		▲	● ➔													
		SC			-very dark-gray below 6'	4.5+	9		▲	● ➔	12.9	41	17	24			43.7	● X — X					
						4.5+	16		▲	● ➔													
10																							
					-light gray below 13'	4.5+	12		▲	● ➔													
15																							
		SC				4.5+	10		▲	● ➔	20.9	29	16	13			25.7	X ● X					
20				▼	-moist below 20'																		
25					Boring terminated at 25'																		

BORING LOG KEY (SHEET 1 OF 2)

Major Classification Group	Sub-Group		Group Hatch	Group Symbol	Group Name	Laboratory Classification Criteria
Coarse-Grained Soils (> 50% retained on the #200 sieve)	Gravels (> 50% of the coarse fraction is retained on the #4 sieve)	Clean gravels		GW	Well-graded gravel	$C_u \geq 4$ and $1 \leq C_c \leq 3$
				GP	Poorly-graded gravel	$C_u < 4$ and/or $1 < C_c$ or $C_c > 3$
		Gravels with fines		GM	Silty gravel	Fine classify as ML or MH
				GC	Clayey gravel	Fine classify as CL or CH
	Sands (≥ 50% of the coarse fraction passes the #4 sieve)	Clean sands		SW	Well-graded sand	$C_u \geq 6$ and $1 \leq C_c \leq 3$
				SP	Poorly graded sand	$C_u < 6$ and/or $1 < C_c$ or $C_c > 3$
		Sands with fines		SM	Silty sand	Fine classify as ML or MH
				SC	Clayey sand	Fine classify as CL or CH
Fine-Grained Soils (≥ 50% passes the #200 sieve)	Silts and clays with liquid limit < 50%		CL	Low plasticity or lean clay	$PI > 7$ and plots on or above "A" line (Must fall outside CL-ML hatched area)	
			ML	Low plasticity silt	$PI < 4$ and plots below "A" line (Must fall outside CL-ML hatched area)	
			OL	Low plasticity organic silt or clay	LL ratio < 0.75	
	Silts and clays with liquid limit ≥ 50%		CH	High plasticity or fat clay	PI plots on or above "A" line	
			MH	High plasticity elastic silt	PI plots below "A" line	
			OH	High plasticity organic silt, organic clay	LL ratio < 0.75	
		Highly organic soils			Pt	Peat
			R	Rock		

Prefix: G = Gravel, S = Sand, M = Silt, C = Clay, O = Organic, R = Rock
Suffix: W = Well-Graded, P = Poorly-Graded, M = Silty, L = Clay with LL<50%, H = Clay with LL≥50%
Ref. ASTM D2487 for dual symbol and modifier requirements.



BORING LOG KEY (SHEET 2 OF 2)

Particle Description	Particle Size (mm)	Retaining U.S. Sieve Size
Boulder	75 - 300	12"
Cobble	75 - 300	3"
Coarse Gravel	19 - 75	3/4"
Fine Gravel	4.75 - 19	No. 4
Coarse Sand	2.0 - 4.75	No. 10
Medium Sand	0.42 - 2.0	No. 40
Fine Sand	0.075 - 0.42	No. 200
Silt	0.002 - 0.075	Hydrometer Analysis Required
Clay	< 0.002	

Liquid Limit (LL)	Swell Potential Classification
< 20	None/Very Low
20 - 35	Low
35 - 50	Moderate
50 - 70	High
70 - 90	Very High
> 90	Extremely High

Sands and Gravels				
Relative Density (Description)	N _{SPT} (blows/ft)	N _{TCP} (blows/ft)	Friction Angle (degrees)	Relative Density (%)
Very Loose	0 - 4	0 - 8	< 30	0 - 20
Loose	4 - 10	8 - 20	30 - 32	20 - 40
Medium Dense	10 - 30	20 - 60	32 - 37	40 - 70
Dense	30 - 50	60 - 100	37 - 42	70 - 90
Very Dense	> 50	> 100	> 42	90 - 100

Silts and Clays			
Consistency	N _{SPT} (blows/ft)	N _{TCP} (blows/ft)	Unconfined Compressive Strength (tsf)
Very Soft	0 - 2	0 - 3	< 0.25
Soft	2 - 4	3 - 6	0.25 - 0.5
Firm	4 - 8	6 - 11	0.5 - 1.0
Stiff	8 - 16	11 - 22	1.0 - 2.0
Very Stiff	16 - 32	22 - 45	2.0 - 4.0
Hard	> 32	> 45	> 4.0

Penetration Range (mm/blow)	Penetration Range (in/blow)	Approximate California Bearing Ratio (CBR)	Approximate Mid-Range k-value (psi/in)
< 4	< 0.16	> 70	> 450
4 - 5	0.16 - 0.20	50 - 70	400 - 450
5 - 8	0.20 - 0.31	30 - 50	350 - 400
8 - 14	0.31 - 0.55	15 - 30	250 - 350
14 - 19	0.55 - 0.75	10 - 15	200 - 250
19 - 25	0.75 - 0.98	7 - 10	150 - 200
25 - 30	0.98 - 1.18	3 - 7	80 - 150
30 - 35	1.18 - 1.38	1 - 3	< 80
> 35	> 1.38	< 1	< 50

Risk	Soluble Sulfate Concentration (PPM)
Low	< 3,000
Moderate	3,000 - 5,000
Moderate to High	5,000 - 8,000
High to Unacceptable	> 8,000
Unacceptable	> 11,000

Hardness	N _{SPT} (blows/ft)	N _{TCP} (in./100 blows)	Unconfined Compressive Strength (psi)
Very Soft	1 - 30	> 6 in./100	< 4,000
Soft	30 - 50	4 in. - 6 in./100	4,000 - 8,000
Hard	50 - 100	2 in. - 5 in./100	8,000 - 16,000
Very Hard	>100	0 in. - 2 in./100	16,000 - 32,000
Extremely Hard	No Penetration	No Penetration	> 32,000

Rock Description	Rock Quality Designation (RQD)
Very Poor	< 0.25
Poor	0.25 - 0.50
Fair	0.50 - 0.75
Good	0.75 - 0.90
Excellent	> 0.90

Description	Meaning
Dry	No water evident in sample. Moisture content less than plastic limit.
Moist	Sample feels damp. Moisture content at or slightly above plastic limit.
Very Moist	Water visible on sample. Moisture content between plastic limit and liquid limit.
Wet	Sample contains free water.

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Project information.
 - 2. Work covered by the Contract Documents.
 - 3. Owner-furnished, contractor-installed products.
 - 4. Access to site.
 - 5. Owner's occupancy requirements.
 - 6. Work restrictions.
 - 7. Specification and drawing conventions.
 - 8. Miscellaneous provisions.
- B. Related Sections include the following:
 - 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Architect's Project Number 2023.03 and City of Brenham's RFP No. 26-015.
 - 1. Project Location: 804 Old N. Market Street, Brenham, Texas 77833.
- B. Owner: City of Brenham, P. O. Box 1059, Brenham, Texas 77834, telephone (979) 337-7246.
 - 1. Owner's Representative: Kyle Branham, Purchasing/Public Works Project Manager.
- C. Architect: BBAX Architects, LLC, 213 West Main Street, Brenham, Texas 77833-3642; telephone (979) 836-0523; website www.bba-x.com
- D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
 - Structural Engineer: Drew Dudley, PE, 6102 Imperial Loop Drive, College Station TX 77845, Tel: (979) 777-0720; www.dudleyeng.com

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The project includes renovation of the existing basketball courts to add an open-air cover over existing basketball courts and add in new flatwork perimeter surrounds along with permanent outdoor furniture (benches).
2. The building is designed to comply with the 2021 International Building Code, 2020 National Electrical Code, and 2021 International Energy Conservation Code.

B. Type of Contract:

1. The project will be constructed under a single prime contract.

1.5 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.

B. Use of Site: Contractor is to access the work areas in the building by entering through the main park entrance. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations on site to areas indicated on the drawings.
2. Building Material Storage: Materials may be stored in the area parking adjacent to the project site.
3. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, the public, 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.

1.6 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 approval of authorities having jurisdiction.
2. Notify the Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.7 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 of 7:00 a.m. to 6:00 p.m., Monday through Friday, except as otherwise indicated.
 1. Weekend Hours: Saturdays from 7:00 a.m. to 4:00 p.m., except when an event is scheduled. No work on Sundays.
 2. Contractor to confirm with Owner the availability of work area on weekends.
- 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 Architect and Owner not less than two days in advance of proposed utility interruptions.
- D. Sanitary Facilities: Contractor to provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Refer to Division 1 Section "Temporary Facilities and Controls" for additional information.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes
- F. Controlled Substances: Use of controlled substances on the Project site is not permitted.

1.8 SPECIFICATIONS 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 1 General Requirements: Requirements of Sections in Division 1 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 scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.9 MISCELLANEOUS PROVISIONS

- A. Taxes: The City of Brenham is exempt from Federal Excise, State Sales, and Transportation Taxes. TAX MUST NOT BE INCLUDED IN THE BID PROPOSAL. The City upon request will execute Tax Exemption Certificates. The City of Brenham is statutorily exempt from State and Local Sales tax and a permit number is not required.
- B. Insurance Requirements: Refer to "Insurance" provisions in the City's Terms and Conditions for Bids found in Instructions to Bidders of these specifications.
- C. Bonds: Performance and payment bonds shall each in the amount of one hundred percent (100%) of the total contract sum. The Contractor shall deliver the required bonds to the Owner not later than ten (10) days after the receipt by such successful Bidder of notice of acceptance of his bid by the Owner. Bonds shall remain in full force and effect for and until one year after final completion and final acceptance by the Owner of the work. Surety companies executing the bonds shall be acceptable to the Owner, authorized to do business where the work is located, and acceptable according to the latest list of companies holding Certificates of Authority from the U.S. Secretary of the Treasury.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This 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 Bid Documents 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. 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: Modify 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 modifications 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.

1.5 SUMMARY

- A. This Section describes each alternate and the changes to the Contract Sum that will result from acceptance of each alternate.
- B. The Base Bid establishes the complete scope of work shown and specified, except as specifically excluded by the alternates described in this Section. The base bid includes the large outdoor industrial fan at the interior apex of the arch structure, as described under Alternate No. 4 below.

- C. Alternates are listed in the Bid Form. Bidder shall provide a complete, separate price for each alternate. The Owner reserves the right to accept or reject any alternate in any order and at any time prior to execution of the Contract without affecting the validity of the bid.

1.3 ALTERNATES SUMMARY

Alternate No.	Type	Description
Alt. 1	Add	Exterior Signage — “HENDERSON” Dimensional Letters
Alt. 2	Deduct	Deduct Large Outdoor Industrial Fan (BAF Powerfoil X3.0)

1.4 ALTERNATE DESCRIPTIONS

A. Add Alternate No. 1 — Exterior Signage

Scope: Provide and install dimensional letter signage spelling “HENDERSON” on the east and west portal openings of the arch structure as indicated on Drawing A3.1. Letters shall be installed at 18 feet above finished floor at the soffit. Mounting type and method shall be by Owner-selected signage company; General Contractor shall coordinate structural attachment requirements with the signage company and the structural engineer of record. Provide all blocking, backing, inserts, or anchorage in the arch structure required to receive the signage company’s mounting hardware.

Measurement: A single lump-sum add amount shall be provided for both portal locations combined.

B. Deduct Alternate No. 2 — Deduct Large Outdoor Industrial Fan

Base Bid Scope: The base bid includes furnishing and installing one (1) large outdoor industrial fan suspended at the interior apex of the arch structure as indicated on Drawing A4.2. Design basis: Big Ass Fans (BAF), Powerfoil X3.0. Base bid shall include the fan unit, all structural suspension hardware, and all associated electrical work including wiring, conduit, variable-speed drive (if applicable), and connections from the electrical panel. The electrical panel location is shown on the Drawings. All electrical work shall be performed by a licensed electrical contractor on a design/build basis. Contractor shall coordinate available circuits with the Owner and circuit the work accordingly. All electrical work shall comply with the current National Electrical Code (NEC) and applicable local codes.

Deduct Alternate Scope: If accepted, Deduct Alternate No. 2 removes the large outdoor industrial fan, all suspension hardware, and all associated electrical rough-in and connections from the scope of work. The electrical panel capacity and conduit stub-out serving the fan location shall remain in the base bid scope regardless of this deduct alternate.

Measurement: A single lump-sum deduct amount shall be provided.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Division 1 Section "Allowances" for products selected under an allowance.
 - 2. Division 1 Section "Alternates" for products selected under an alternate.
 - 3. Division 1 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 4. Divisions 2 through 49 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 SUBMITTALS

- A. Substitution Requests: Submit one copy 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: Contractor's standard Substitution Request Form.
 - 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 architects 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, from ICC-ES.
 - 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. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor 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 Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 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.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

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: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - 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, unless otherwise indicated.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Division 1 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect 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, "Architect's Supplemental Instructions", or similar form.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect 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. Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 10 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.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

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 Division 1 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use AIA Document G709 for Proposal Requests, or similar form acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Division 1 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect 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 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 2. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 3. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule.
 - 4. Division 01 Section "Submittal Procedures" for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 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 Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the 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 Architect.

- c. Architect'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 Continuation Sheets.
- 3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of labor, materials, and equipment, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
- 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts, in excess of five percent of the Contract Sum.
- 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 6. 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.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance.
- 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
- 8. 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 Value or distributed as general overhead expense, at Contractor's option.
- 9. 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.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect 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: Progress payments shall be submitted to Architect by the 1st day of the month. The period covered by each Application for Payment is one calendar month, ending on the last day of the preceding month.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets 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. Architect 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 for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for off-site stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- F. Transmittal: Submit signed and notarized original copy of each Application for Payment to Architect by electronic format, including waivers of lien and similar attachments if required.
- 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 and suppliers.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. Copies of building permits.
 6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 7. Certificates of insurance and insurance policies.
 8. Performance and payment bonds.
- H. Application for Payment at Substantial Completion: After issuing 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: 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, "Contractor's Affidavit of Payment of Debts and Claims."

5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Requests for Information (RFIs).
 - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections include the following:
 - 1. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 2. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 COORDINATION

- 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 with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

- 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.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Project closeout activities.
 - 7. Startup and adjustment of systems.
 - 8. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 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 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.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Project closeout activities.
7. Startup and adjustment of systems.

1.6 KEY PERSONNEL

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals, their duties and responsibilities, email addresses, and cellular phone numbers.
- B. 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. 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.

1.7 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. Architect will return RFIs submitted to Architect 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 Architect.
 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 suggested resolution 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.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716, or software-generated form with substantially the same content as indicated above, acceptable to Architect.

1. RFI forms and attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect'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 Division 1 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. On receipt of Architect's action, immediately distribute the RFI response to affected parties. Review response and notify Architect 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.
 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 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 Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.

1.6 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect, at Architect's sole discretion, for use in preparing submittals, under the following conditions.
 1. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 2. Digital Drawing Software Program: The Contract Drawings are available in AutoCad.
 3. Party requesting the files shall execute a Waiver and Release in an Agreement form acceptable to Owner and Architect.
 4. Drawings files are limited to architectural drawing sheets. Drawings from Architect's or Owner's consultants are limited to availability.
- 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. Architect 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 Architect'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 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect 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.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15

days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

- D. 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-06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06100.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software or Contractor's electronic form acceptable to Architect, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. 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., 06100.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- E. Options: Identify options requiring selection by Architect.
- F. Deviations and Additional Information: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- G. Resubmittals: Make resubmittals in same form 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 Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Submit electronic submittals via email as PDF electronic files, or post electronic submittals to the Project using Contractor's web-based construction project management software.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
- 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 concurrent with Samples.
 - 6. Submit Product Data in PDF electronic file format.
- 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 Architect'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 PDF electronic file format.

- 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. 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 set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. 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 one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 5. 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 two sets of Samples. Architect will retain both Sample sets.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) 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. Coordination Drawing Submittals: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."
- I. 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 architects and owners, and other information specified.

- J. 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.
- K. 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.
- L. 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.
- M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- O. 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.
- P. 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.
- Q. 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. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- R. 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.
- S. 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.

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 Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 1 Section "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 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This 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. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. 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.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for testing and inspecting allowances.
 - 2. Divisions 2 through 49 Sections for specific test and inspection requirements.

1.3 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 Architect.
- 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.

- D. Preconstruction Testing: Tests and inspections that are performed specifically for the 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 industry standards.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., 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, "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.

1.4 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 Architect 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 Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior or laboratory mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

- A. 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.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.7 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. 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.

1.8 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 is 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 E329; 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 Technical 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. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. 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. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory 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 Architect, 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.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form 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 Architect.
 2. Notify Architect three business days in advance of dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect'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.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.
- M. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 49.

1.9 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. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- 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. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. 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.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. 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 factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
- D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect 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.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 - 1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, with copy to Contractor and to authorities having jurisdiction.
 - 3. Submitting a final report of special tests and inspections at Substantial Completion which includes a list of unresolved deficiencies.
 - 4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 5. 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 Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect'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 Division 1 Section "Cutting and Patching."
- 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 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "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.

1.3 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.

1.4 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 standards and regulations in the following list. Names and website addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

- | | | |
|-----|--------|--|
| 1. | AA | Aluminum Association (The)
www.aluminum.org |
| 2. | AABC | Associated Air Balance Council
www.aabc.com |
| 3. | AAMA | American Architectural Manufacturers Association
www.aamanet.org |
| 4. | AASHTO | American Association of State Highway and Transportation Officials
www.transportation.org |
| 5. | AATCC | American Association of Textile Chemists and Colorists
www.aatcc.org |
| 6. | ABAA | Air Barrier Association of America
www.airbarrier.org |
| 7. | ABMA | American Bearing Manufacturers Association
www.americanbearings.org |
| 8. | ACI | American Concrete Institute
www.concrete.org |
| 9. | ACPA | American Concrete Pipe Association
www.concrete-pipe.org |
| 10. | AEIC | Association of Edison Illuminating Companies, Inc. (The)
www.aeic.org |
| 11. | AF&PA | American Forest & Paper Association
www.afandpa.org |
| 12. | AGA | American Gas Association
www.aga.org |
| 13. | AHAM | Association of Home Appliance Manufacturers
www.aham.org |
| 14. | AHRI | Air-Conditioning, Heating, and Refrigeration Institute, The
www.ahrinet.org |
| 15. | AI | Asphalt Institute, The
www.asphaltinstitute.org |
| 16. | AIA | American Institute of Architects (The)
www.aia.org |
| 17. | AISC | American Institute of Steel Construction
www.aisc.org |
| 18. | AISI | American Iron and Steel Institute
www.steel.org |
| 19. | AITC | American Institute of Timber Construction
www.aitc-glulam.org |
| 20. | ALSC | American Lumber Standard Committee, Incorporated
www.alsc.org |
| 21. | AMCA | Air Movement and Control Association International, Inc.
www.amca.org |

22. ANSI American National Standards Institute
www.ansi.org
23. AOSA Association of Official Seed Analysts, Inc.
www.aosaseed.com
24. APA APA - The Engineered Wood Association
www.apawood.org
25. APA Architectural Precast
Association www.archprecast.org
26. API American Petroleum Institute
www.api.org
27. ARMA Asphalt Roofing Manufacturers Association
www.asphaltroofing.org
28. ASCE American Society of Civil Engineers
www.asce.org
29. ASHRAE American Society of Heating, Refrigerating and Air-Conditioning
Engineers
www.ashrae.org
30. ASME ASME International
www.asme.org
31. ASSE American Society of Sanitary Engineering
www.asse-plumbing.org
32. ASTM ASTM (American Society for Testing and Materials) International
www.astm.org
33. ATIS Alliance for Telecommunications Industry Solutions
www.atis.org
34. AWCMA American Window Covering Manufacturers Association
(Now WCMA)
35. AWCi Association of the Wall and Ceiling Industry
www.awci.org
36. AWI Architectural Woodwork Institute
www.awinet.org
37. AWPAA American Wood Protection Association
www.awpa.com
38. AWS American Welding Society
www.aws.org
39. AWWA American Water Works Association
www.awwa.org
40. BHMA Builders Hardware Manufacturers Association
www.buildershardware.com
41. BIA Brick Industry Association (The)
www.gobrick.com
42. BICSI BICSI, Inc.
www.bicsi.org
43. BIFMA Business & Institutional Furniture Manufacturer's Association
International
www.bifma.com
44. BISSC Baking Industry Sanitation Standards Committee
www.bissc.org
45. CCC Carpet Cushion Council
www.carpetcushion.org
46. CDA Copper Development Association
www.copper.org
47. CEA Canadian Electricity Association
www.canelect.ca
48. CEA Consumer Electronics Association
www.ce.org
49. CFFA Chemical Fabrics and Film Association Inc.

50.	CGA	www.chemicalfabricsandfilm.com Compressed Gas Association www.cganet.com
51.	CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org
52.	CISCA	Ceilings & Interior Systems Construction Association www.cisca.org
53.	CISPI	Cast Iron Soil Pipe Institute www.cispi.org
54.	CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org
55.	CPA	Composite Panel Association www.pbmdf.com
56.	CRI	Carpet and Rug Institute (The) www.carpet-rug.com
57.	CRSI	Concrete Reinforcing Steel Institute www.crsi.org
58.	CRRC	Cool Roof Rating Council www.coolroofs.org
59.	CSA	Canadian Standards Association www.csa.ca
60.	CSI	Construction Specifications Institute, The www.csinet.org
61.	CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org
62.	CTI	Cooling Technology Institute www.cti.org
63.	DHI	Door and Hardware Institute www.dhi.org
64.	ECA	Electrical Components Association www.ec-central.org
65.	EIA	Electronic Industries Alliance www.eia.org
66.	EIMA	EIFS Industry Members Association www.eima.com
67.	EJCDC	Engineers Joint Contract Documents Committee http://content.asce.org/ejcdc/
68.	EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org
69.	ESD	Electrostatic Discharge Association www.esda.org
70.	ETL SEMCO	Intertek www.intertek-etlsemko.com
71.	FIBA	The International Basketball Federation www.fiba.com
72.	FIVB	The International Volleyball Federation www.fivb.ch
73.	FM Approvals	FM Global www.fmglobal.com
74.	FM Global	FM Global www.fmglobal.com
75.	FSA	Fluid Sealing Association www.fluidsealing.com
76.	FSC	Forest Stewardship Council www.fsc.org
77.	GA	Gypsum Association www.gypsum.org

REFERENCES

78.	GANA	Glass Association of North America www.glasswebsite.com
79.	GS	Green Seal www.greenseal.org
80.	GSI	Geosynthetic Institute www.geosynthetic-institute.org
81.	HI	Hydronics Institute www.gamanet.org
82.	HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association www.ahrinet.org
83.	HPVA	Hardwood Plywood & Veneer Association www.hpva.org
84.	HPW	H. P. White Laboratory, Inc. www.hpwhite.com
85.	IAPSC	International Association of Professional Security Consultants www.iapsc.org
86.	ICBO	International Conference of Building Officials www.iccsafe.org
87.	ICEA	Insulated Cable Engineers Association, Inc. www.icea.net
88.	ICRI	International Concrete Repair Institute, Inc. www.icri.org
89.	ICPA	International Cast Polymer Association www.icpa-hq.org
90.	IEC	International Electrotechnical Commission www.iec.ch
91.	IEEE	Institute of Electrical and Electronics Engineers www.ieee.org
92.	IES	Illuminating Engineering Society of North America www.iesna.org
93.	IENT	Institute of Environmental Sciences and Technology www.ient.org
94.	IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org
95.	ILI	Indiana Limestone Institute of America www.iliai.com
96.	ISA	Instrumentation, Systems, and Automation Society, The www.isa.org
97.	ISO	International Organization for Standardization www.iso.ch
98.	ISSFA	International Solid Surface Fabricators Association www.issfa.net
99.	ITU	International Telecommunication Union www.itu.int
100.	KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org
101.	LGSEA	Light Gauge Steel Engineers Association www.arcat.com
102.	LPI	Lightning Protection Institute www.lightning.org
103.	MBMA	Metal Building Manufacturers Association www.mbma.com
104.	MCA	Metal Construction Association www.metalconstruction.org
105.	MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org
106.	MFMA	Metal Framing Manufacturers Association, Inc.

107.	MHIA	www.metalframingmfg.org Material Handling Industry of America www.mhia.org
108.	MIA	Marble Institute of America www.marble-institute.com
109.	MPI	Master Painters Institute www.paintinfo.com
110.	MSS	Manufacturers Standardization Society of Valve and Fittings Industry Inc. www.mss-hq.com
111.	NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org
112.	NACE	National Association of Corrosion Engineers International www.nace.org
113.	NADCA	National Air Duct Cleaners Association www.nadca.com
114.	NAIMA	North American Insulation Manufacturers Association www.naima.org
115.	NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com
116.	NCAA	National Collegiate Athletic Association www.ncaa.org
117.	NCMA	National Concrete Masonry Association www.ncma.org
118.	NCTA	National Cable & Telecommunications Association www.ncta.com
119.	NEBB	National Environmental Balancing Bureau www.nebb.org
120.	NECA	National Electrical Contractors Association www.necanet.org
121.	NelMA	Northeastern Lumber Manufacturers' Association www.nelma.org
121.	NEMA	National Electrical Manufacturers Association www.nema.org
122.	NETA	InterNational Electrical Testing Association www.netaworld.org
123.	NFHS	National Federation of State High School Associations www.nfhs.org
124.	NFPA	National Fire Protection Association www.nfpa.org
125.	NFRC	National Fenestration Rating Council www.nfrc.org
126.	NGA	National Glass Association www.glass.org
127.	NHLA	National Hardwood Lumber Association www.natlhardwood.org
128.	NLGA	National Lumber Grades Authority www.nlga.org
129.	NOFMA	The Wood Flooring Manufacturers Association www.nofma.org
130.	NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org
131.	NRCA	National Roofing Contractors Association www.nrca.net
132.	NRMCA	National Ready Mixed Concrete Association www.nrmca.org
133.	NSF	National Sanitation Foundation International www.nsf.org

134.	NSSGA	National Stone, Sand & Gravel Association www.nssga.org
135.	NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com
136.	NWFA	National Wood Flooring Association www.nwfa.org
137.	PCI	Precast/Prestressed Concrete Institute www.pci.org
138.	PDI	Plumbing and Drainage Institute www.pdionline.org
139.	PGI	PVC Geomembrane Institute www.pvcgeomembrane.com
140.	PTI	Post-Tensioning Institute www.post-tensioning.org
141.	RCSC	Research Council on Structural Connections www.boltcouncil.org
142.	RFCI	Resilient Floor Covering Institute www.rfci.com
143.	RIS	Redwood Inspection Service www.redwoodinspection.com
144.	SAE	SAE International www.sae.org
145.	SCAQMD	South Coast Air Quality Management District www.aqmd.com
146.	SCTE	Society of Cable Telecommunications Engineers www.scte.org
147.	SDI	Steel Deck Institute www.sdi.org
148.	SDI	Steel Door Institute www.steeldoor.org
149.	SEFA	Scientific Equipment and Furniture Association www.sefalabs.com
150.	SIA	Security Industry Association www.siaonline.org
151.	SJI	Steel Joist Institute www.steeljoist.org
152.	SMA	Screen Manufacturers Association www.smacentral.org
153.	SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org
154.	SMPTE	Society of Motion Picture and Television Engineers www.smpte.org
155.	SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org
156.	SPIB	Southern Pine Inspection Bureau (The) www.spib.org
157.	SPRI	Single Ply Roofing Industry www.spri.org
158.	SSINA	Specialty Steel Industry of North America www.ssina.com
159.	SSPC	Steel Structures Painting Council www.sspc.org
160.	STI	Steel Tank Institute www.steeltank.com
161.	SWI	Steel Window Institute www.steelwindows.com
162.	SWPA	Submersible Wastewater Pump Association

163.	TCA	www.swpa.org Tilt-Up Concrete Association
164.	TCNA	www.tilt-up.org Tile Council of North America, Inc.
165.	TEMA	www.tileusa.com Tubular Exchanger Manufacturers Association
166.	TIA/EIA	www.tema.org Telecommunications Industry Association/Electronic Industries Alliance
167.	TMS	www.tiaonline.org The Masonry Society
168.	TPI	www.masonrysociety.org Truss Plate Institute, Inc.
169.	TPI	www.tpinst.org Turfgrass Producers International
170.	TRI	www.turfgrasssod.org Tile Roofing Institute
171.	UL	www.tileroofing.org Underwriters Laboratory
172.	UNI	www.ul.com Uni-Bell PVC Pipe Association
173.	USAV	www.uni-bell.org USA Volleyball
174.	USGBC	www.usavolleyball.org U.S. Green Building Council
175.	USITT	www.usgbc.org United States Institute for Theatre Technology
176.	WCLIB	www.usitt.org West Coast Lumber Inspection Bureau
177.	WCMA	www.wclib.org Window Covering Manufacturers Association
178.	WDMA	www.wcmanet.org Window and Door Manufacturers Association
179.	WI	www.wdma.com Woodwork Institute
180.	WMMPA	www.wicnet.org Wood Moulding & Millwork Producers Association
181.	WSRCA	www.wmmpa.com Western States Roofing Contractors Association
182.	WWPA	www.wsrca.com Western Wood Products Association
		www.wwpa.org

- B. 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. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1.	DIN	German Institute for Standardization, The www.din.de
2.	IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org
3.	ICC	International Code Council www.iccsafe.org
4.	ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org

- C. 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. Names and website addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1.	COE	Army Corps of Engineers www.usace.army.mil
2.	CPSC	Consumer Product Safety Commission www.cpsc.gov
3.	DOC	Department of Commerce www.commerce.gov
4.	DOD	Department of Defense http://dodssp.daps.dla.mil
5.	DOE	Department of Energy www.energy.gov
6.	EPA	Environmental Protection Agency www.epa.gov
7.	FAA	Federal Aviation Administration www.faa.gov
8.	FCC	Federal Communications Commission www.fcc.gov
9.	FDA	U.S. Food and Drug Administration www.fda.gov
10.	GSA	General Services Administration www.gsa.gov
11.	HUD	Department of Housing and Urban Development www.hud.gov
12.	LBL	Lawrence Berkeley National Laboratory www.lbl.gov
13.	NCHRP	National Cooperative Highway Research Program (See TRB)
14.	NIST	National Institute of Standards and Technology www.nist.gov
15.	OSHA	Occupational Safety & Health Administration www.osha.gov
16.	PBS	Public Buildings Service (See GSA)
17.	PHS	U.S. Public Health Service Corps http://www.hhs.gov/ophs/
18.	RUS	Rural Utilities Service www.usda.gov/rus/
19.	SD	State Department www.state.gov
20.	TRB	Transportation Research Board http://gulliver.trb.org
21.	USDA	United States Department of Agriculture www.usda.gov
22.	USP	U.S. Pharmacopeia www.usp.org
23.	USPS	Postal Service www.usps.com

- D. 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. Names and website addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1. ADAAG Americans with Disabilities Act (ADA)
Architectural Barriers Act (ABA)
Accessibility Guidelines for Buildings and Facilities
Available from U.S. Access Board
www.access-board.gov
 2. CFR Code of Federal Regulations
Available from Government Printing Office
www.gpoaccess.gov/cfr/index.html
 3. DOD Department of Defense Military Specifications and Standards
Available from Department of Defense Single Stock Point
<http://dodssp.daps.dla.mil>
 4. DSCC Defense Supply Center Columbus
(See FS)
 5. FED-STD Federal Standard
(See FS)
 6. FS Federal Standard
Available from Department of Defense Single Stock Point
<http://dodssp.daps.dla.mil/>
www.dsp.dla.mil
Available from General Services Administration
Available from National Institute of Building Sciences
www.wbdg.org/ccb
 7. FTMS Federal Test Method Standard
(See FS)
 8. MIL
MIL-STD
MILSPEC
(See MILSPEC)
Available from Department of Defense Single Stock Point
<http://dodssp.daps.dla.mil>
 9. TAS Texas Accessibility Standards
www.tdlr.texas.gov/ab/ab.htm
 10. UFAS
Available from Access Board
www.access-board.gov
- E. 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. Names and website addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
1. CBHF Bureau of Electronic and Appliance Repair,
Home Furnishings and Thermal Insulation
www.bearhfti.ca.gov
 2. CCR California Code of Regulations
www.oal.ca.gov/CCR.htm
 3. CDHS California Department of Health Services
www.dhcs.ca.gov
 4. CDPH California Department of Public Health, Indoor Air Quality Section
www.cal-iaq.org
 5. CPUC California Public Utilities Commission
www.cpuc.ca.gov
 6. TDLR Texas Department of Licensing and Regulation
www.tdlr.texas.gov
 7. TFS Texas Forest Service
<http://txforestservice.tamu.edu>

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for limitations on utility interruptions and other work restrictions.
 - 2. Division 31 Section "Dewatering" for disposal of ground water at Project site.
 - 3. Division 32 Section "Cement Concrete Pavement" for construction and maintenance of pavement for temporary roads and paved areas.

1.3 USE CHARGES

- A. Sewer Service: Owner will pay sewer service use charges for sewer usage by all entities for construction operations.
- B. Water Service: Owner will pay water service use charges for water used by all entities for construction operations.
- C. Electric Power Service: Owner will pay electric power service use charges for electricity used by all entities for construction operations.

1.4 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.

1.5 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 temporary utility before use. Obtain required certifications and permits.

1.6 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. Pavement: Comply with Division 32 Section "Cement Concrete Pavement".
- B. 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.
- C. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
- D. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.
- E. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
- F. Paint: Comply with requirements in Division 9 painting Sections.

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, Architect, and construction personnel office activities and to accommodate Project meetings if specified in other Division 1 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Drinking water and private toilet.
 - 3. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 4. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

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 testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Division 1 Section "Closeout Procedures."

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.
 - 1. Locate facilities to limit site disturbance as specified in Division 1 Section "Summary."
- 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 or private system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with 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.

- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- I. 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.
- J. Telephone Service: Provide superintendent with cellular telephone.
- K. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.

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 Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 - 2. Prepare sub-grade and install sub-base and base for temporary roads and paved areas according to Division 31 Section "Earthwork."
 - 3. Recondition base after temporary use, including removing contaminated material, re-grading, proof-rolling, compacting, and testing.
- C. 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.
- D. Parking: Provide temporary parking areas for construction personnel.
- E. 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 nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.

- F. Project Signs: Provide Project sign as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification sign as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- G. 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 Division 1 Section "Execution Requirements."

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- B. 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 the erosion- and sedimentation-control drawings and requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- C. 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.
- D. 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.
- E. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence where indicated on drawings and 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.

- F. 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.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. 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 weather-tight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- I. 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.
 - 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 as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- 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. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 - 7. 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. Use permanent HVAC system to control humidity.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. 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. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This 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; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for products selected under an allowance.
 - 2. Division 1 Section "Alternates" for products selected under an alternate.
 - 3. Division 1 Section "Substitution Procedures" for requests for substitutions.
 - 4. Division 1 Section "References" for applicable industry standards for products specified.
 - 5. Division 1 Section "Closeout Procedures" for submitting warranties for Contract closeout.

1.3 DEFINITIONS

- A. Products: Items purchased 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.
- A. 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.

1.4 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. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 1 Section "Submittal Procedures."
 - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 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 ensure compliance with the Contract Documents and to ensure 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 weather-tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store 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.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 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 appropriate form properly executed.
 3. Refer to Divisions 2 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "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," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 1. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

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 not be considered, unless otherwise indicated.
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 not be considered, unless otherwise indicated.
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 Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect'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 Division 1 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect 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: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect 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 architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general 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 Sections include the following:
 - 1. Division 1 Section "Submittal Procedures" for submitting surveys.
 - 2. Division 1 Section "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. Division 07 Section "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor or professional engineer.
- B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

- D. Certified Surveys: Submit two copies signed by land surveyor.

1.5 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 Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements 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.
 - 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.
 - 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 Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 1 sustainable design requirements Section.
- 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 Architect 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 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. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. 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 local utility 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 Architect according to requirements in Division 1 Section "Project Management and Coordination."
- E. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

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 Architect promptly.
- B. General: Engage a land surveyor or professional engineer 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 dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 6. 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 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 Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. 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.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. 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.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

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.
 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- 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 produces 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 Architect.
 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 anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in 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. 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 Division 2 Sections where required by cutting and patching operations.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- F. 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.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.

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.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 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.
- G. 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 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.8 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.
 - a. Use containers intended for holding waste materials of type to be stored.
- 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. Comply with waste disposal requirements in Division 1 Section "Temporary Facilities and Controls."
- 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.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- 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 Division 1 Section "Quality Requirements."

3.10 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 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Execution" for progress cleaning of Project site.
 - 2. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 3. Divisions 2 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.
 - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 11. Advise Owner of changeover in heat and other utilities.

12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. 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, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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 Architect, that must be completed or corrected before certificate will be issued.

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

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. 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 a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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.

1.5 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. Include the following information at the top of each page:
 - a. Project name.

- b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
4. Submit list of incomplete items in PDF electronic file.

1.6 WARRANTIES

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

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.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

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 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. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Division 1 Section "Temporary Facilities and Controls."

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
 - 2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Divisions 2 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Submit one set of marked-up record prints,
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy 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.

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. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - 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. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders and Record Drawings where applicable.

B. Format: Submit record Specifications as 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 paper copy.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

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 paper copy.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

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 modifications to Project Record Documents as they occur; do not wait until the 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 Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes, if any, by a landfill facility licensed to accept hazardous wastes.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. A report dated July 10, 2023 prepared by Austin Environmental Inc. on the presence of hazardous materials is attached at the end of this Section for review and use. No asbestos content was detected in suspect building materials sampled and tested.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION

- A. Demolish and Remove: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations.
 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 5. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition, and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 031000 – BOARD-FORMED CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Board-formed concrete for exposed architectural concrete surfaces using rough-sawn lumber forms, including the raised stem wall at the Henderson Park Basketball Court Cover.
- B. Related Sections:
 - 1. Section 033000 – Cast-in-Place Concrete.

1.3 REFERENCES

- A. Codes and standards referred to in this Section:
 - 1. ACI 318 – Building Code Requirements for Structural Concrete
 - 2. ACI SP-4 – Formwork for Concrete
 - 3. ACI 303R – Guide to Cast-in-Place Architectural Concrete
 - 4. ACI 347R – Guide to Formwork for Concrete

1.4 SUBMITTALS

- A. Provide all submittals as specified in Division 1, including the following:
 - 1. Shop Drawings: Proposed form layout drawings showing board species, nominal width, orientation, arrangement pattern, and form tie spacing for all board-formed concrete surfaces. Review of these drawings does not relieve the Contractor of responsibility for adequately designing and constructing forms.
 - 2. Samples: Samples of proposed rough-sawn lumber species and grade, chamfer strips, and form release agent for Architect review prior to constructing the sample panel.
 - 3. Patching Mortar: Written description of proposed tie-hole patching mortar mix, including white cement proportion, for Architect review prior to sample panel construction.

1.5 QUALITY ASSURANCE

- A. Formwork Compliance: Use formwork complying with ACI SP-4, ACI 347R, and ACI 303R.
- B. Sample Panel: Prior to forming any board-formed concrete, construct a sample panel at a location on site as directed by the Architect.
 - 1. Minimum panel size: 4 feet wide by 4 feet tall, at the full design wall thickness, using the same lumber species, board width, orientation, form tie pattern, and release agent proposed for the work.
 - 2. Obtain the Architect's written approval of the sample panel before proceeding with any board-formed concrete construction.
 - 3. The approved sample panel shall establish the standard for board texture, wood-grain impression, tie hole plugging, color uniformity, and surface quality.
 - 4. Leave the approved sample panel on site throughout construction as the workmanship standard. Remove upon Substantial Completion.

PART 2 – PRODUCTS

2.1 FORM LUMBER

- A. Species: Use rough-sawn lumber of a uniform species throughout each exposed concrete surface. Acceptable species: Douglas Fir, Southern Yellow Pine, or Western Red Cedar, subject to Architect

approval. Do not mix species on any single exposed surface.

- B. Board Width: Use nominal 1x6 or 1x8 boards as approved by the Architect based on the sample panel review. All boards on any single exposed surface shall be the same nominal width unless otherwise approved in writing.
- C. Surface: Boards shall be rough-sawn (not dressed or planed) on the face placed against the concrete to impart the desired wood-grain texture to the finished surface.
- D. Moisture Condition: Use boards in an air-dry condition. Thoroughly wet all form faces with clean water immediately before placing concrete to raise the grain, minimize absorption of mix water, and enhance texture transfer to the concrete.
- E. Board Orientation: Install boards vertically on stem wall forms unless otherwise shown on the Drawings or approved by the Architect.
- F. Board Pattern: Install boards in a consistent, uniform pattern. All boards shall be of equal nominal width. Random or mixed-width arrangements will not be accepted unless specifically approved in writing.

2.2 OTHER FORM MATERIALS

- A. Form Release Agent: Barrier-type, VOC-compliant form release agent compatible with the board species selected. Do not use petroleum-based agents that will stain or discolor concrete. Do not allow release agent to contact reinforcing steel or embedded items.
- B. Form Ties: Use she-bolts, snap ties with break-back cones, or coil rod ties that leave no metal closer than 1 inch to the concrete surface after removal. Wire ties are not permitted. Ties shall be equipped with water seals or swaged washers to prevent paste seepage along the shank. Leave tie rods in place; remove only the outer removable portion after stripping.
- C. Tie Cones: Use cone-type tie ends producing circular recesses at the concrete surface no greater than 7/8-inch diameter.
- D. Chamfer Strips: 3/4-inch (nominal) beveled chamfer strips at all exposed external corners of walls and at openings.
- E. Joint Tape: 1/8-inch thick by 3/4-inch wide closed-cell foam tape for sealing board-to-board joints and end joints.
- F. Tie Hole Patching Mortar: Portland cement mortar with sufficient white cement to match the color of the adjacent as-formed concrete surface. Proportion and test on the sample panel prior to production patching.

2.3 CONCRETE MIX COORDINATION

- A. Coordinate with Section 033000 – Cast-in-Place Concrete for mix design. Use a consistent mix design and batch plant source for all board-formed concrete placements to promote uniform color across the finished surface.

PART 3 – EXECUTION

3.1 DESIGN RESPONSIBILITY

- A. The Contractor is responsible for the design, engineering, and construction of all concrete formwork. Conform the work to the recommendations of ACI SP-4, ACI 347R, and ACI 303R.
- B. Setting Time: When fly ash or ground granulated blast-furnace slag is used in the concrete mix, account for delayed setting time in the design and scheduling of form removal.
- C. Placement Loads: Assume sole responsibility for the adequacy of all form elements to resist wet concrete pressures for the mix as specified and delivered.
- D. Dimensional Accuracy: Design forms to produce concrete members identical in shape, lines, and dimensions to those shown on the Drawings, within the tolerances of Section 3.6.

3.2 FORMWORK CONSTRUCTION

- A. General Requirements:
 - 1. Provide forms that are substantial, properly braced, and tied to maintain position and shape under all construction loads and concrete pressures. Make forms sufficiently tight to prevent

leakage of cement paste.

2. Determine stud and wale size and spacing based on the height and rate of concrete placement. Make forms adequate to produce surfaces with not more than 1/8-inch variation from a geometric plane. Provide horizontal joints that are level and vertical joints that are plumb.
3. Supply forms in sufficient quantity to maintain the required rate of progress.
4. Thoroughly clean all form surfaces before reuse. Inspect forms immediately before each concrete placement; remove or replace deformed, split, warped, or defective boards.
5. Provide temporary cleanout openings in forms at convenient locations to facilitate cleaning and inspection prior to concrete placement.
6. Apply form release agent to the entire inside face of forms just prior to placing concrete. Do not allow release agent to contact reinforcing steel, embedded items, or joint tape.

B. Board-Formed Concrete:

1. Install boards with the rough-sawn face against the concrete surface to impart wood-grain texture.
2. Butt board ends tightly with no visible gaps. Seal all face joints and end joints with foam backer tape centered on the joint to prevent paste leakage and surface fins. Re-tape at each reuse.
3. Wet all form board faces thoroughly with clean water immediately before placing concrete.
4. Space form ties in a uniform horizontal and vertical grid pattern as shown on approved shop drawings. The tie pattern will be permanently visible on the finished surface; confirm final spacing with the Architect before forming.
5. Run boards so that vertical joints are continuous from top to bottom of the wall face. Stagger horizontal end-to-end butt joints between adjacent boards by a minimum of 16 inches; align all butt joints at the same elevation across the wall.
6. Do not reuse individual boards more than twice for exposed architectural concrete surfaces. Discard boards that are warped, split, excessively checked, or have lost their rough-sawn texture.
7. Install 3/4-inch chamfer strips at all exposed external corners per Section 2.2.D.

3.3 FORM REMOVAL

- A. Structural Concrete Form Removal: Do not remove forms until the concrete has hardened sufficiently to safely support its own weight plus superimposed construction loads. Minimum removal times and required concrete strengths are as follows. Times are cumulative hours or days during which ambient temperature at the concrete surface remains above 50°F.

Member / Condition	Min. Time	Min. Strength (psi)
Wall sides (board-formed and structural)	18 hrs	1,300

1. Increase form removal times when concrete temperature drops below 50°F following placement, or when fly ash or slag is included in the mix.
2. Remove the outer removable portion of form ties immediately after stripping forms.

- B. Board-Formed Concrete Form Removal: Strip forms for board-formed architectural concrete surfaces no sooner than 18 hours and no later than 36 hours after completion of concrete placement to preserve surface freshness for patching and minimize the risk of surface damage during stripping.

3.4 TIE HOLE PATCHING

- A. Clean tie holes of all debris and pre-wet with clean water.
- B. Apply a neat cement slurry bond coat to the interior of each hole immediately before patching.
- C. Fill holes with approved patching mortar at dry-pack (stiff) consistency. Tamp firmly with a wood dowel or plug tool to achieve full, dense fill without smearing mortar onto the surrounding concrete

face.

- D. Verify the color match of patching mortar against the as-formed concrete surface on the sample panel before beginning production patching. Adjust the white cement proportion until an acceptable match is achieved.
- E. Cure patched holes by keeping moist for a minimum of 24 hours.

3.5 RESHORING

- A. If early form removal is required, develop a reshoring plan including member-by-member details and schedule. Do not impose construction loads on any unshored portion of the structure in excess of the structural design loads.

3.6 TOLERANCES

- A. Design, construct, and maintain formwork to produce finished concrete within the following tolerances:
 - 1. Variation from plumb: 1/4 inch in any 10-foot height; 3/8 inch maximum per story.
 - 2. Variation from level or from design elevation: 1/4 inch in any 10-foot length; 3/4 inch maximum per bay or 40-foot length.
 - 3. Variation in wall cross-sectional dimensions: minus 1/4 inch to plus 3/8 inch.
 - 4. Variation in slab thickness: minus 1/4 inch to plus 3/8 inch.
 - 5. Variation in tie hole location from approved pattern: 1/2 inch maximum.

3.7 INSPECTION

- A. Prior to each concrete placement, inspect completed formwork to verify that forms, braces, ties, anchor bolts, conduit, and embedded items are at correct line, level, and cross-section. Correct deviations from specified tolerances before placing concrete.
- B. Monitor formwork during concrete placement to verify that forms, braces, and ties have not been displaced by concrete placement operations or equipment.

END OF SECTION

SECTION 133419- PREFABRICATED STEEL ARCH BUILDING SYSTEM

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. This Section includes a prefabricated cold-formed steel arch building system serving as the primary structure, roof, and exterior enclosure of the Henderson Park Basketball Court Cover. The system is a self-supporting clear-span arch constructed of corrugated steel panels with no interior columns or trusses.
- B. Related Sections:
1. Section 031000 - Board Formed Concrete: stem wall base receiving the arch building system.
 2. Section 033000 - Cast-in-Place Concrete: footings and stem wall structural core.
 3. Section 079200 - Joint Sealants: perimeter sealing at base interface.

1.3 REFERENCES

- A. American Iron and Steel Institute (AISI): North American Specification for the Design of Cold-Formed Steel Structural Members.
- B. American Institute of Steel Construction (AISC): applicable standards for fabricated structural steel.
- C. American Society for Testing and Materials (ASTM):
1. ASTM A792 / A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 2. ASTM A653 / A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- D. American Society of Civil Engineers (ASCE): ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- E. International Building Code (IBC): current adopted edition.
- F. Florida Product Approval No. FL-15623-R7, including High Velocity Hurricane Zones.
- G. U.S. EPA ENERGY STAR Program: qualification for roof products.

1.4 SUBMITTALS

- A. Product Data: manufacturer's technical data sheets for steel panels, hardware, coatings, and warranties.
- B. Shop Drawings: manufacturer-prepared drawings stamped by a licensed Professional Engineer registered in the State of Texas, including:
1. Plan, elevation, and section views of the complete arch system.
 2. Anchor bolt layout and base connection details coordinated with the structural drawings.
 3. Panel layout, overlap dimensions, and fastener spacing.
 4. Design loads (wind, snow, seismic) with calculations.
- C. Warranty: submit manufacturer's and steel mill warranty certificates prior to substantial completion.

D. Certificates: ENERGY STAR certification documentation for Galvalume Plus coating; Florida Product Approval documentation.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: the prefabricated arch building system shall be designed and manufactured by a firm with not less than 10 years of continuous experience producing cold-formed steel arch building systems, with demonstrated delivery of not fewer than 10,000 structures.

B. Engineering: all design and calculations shall be stamped by a licensed Professional Engineer. State-stamped plans shall be included with each structure.

C. Design Standards: the cold-formed steel building shall be designed in accordance with the International Building Code, the AISI North American Specification for the Design of Cold-Formed Steel Structural Members, ASCE 7, and applicable AISC and ASTM specifications current at the time of manufacturing.

D. Wind Resistance: the structure shall be designed to resist a minimum wind speed of 130 mph, consistent with local jurisdiction requirements for Brenham, Washington County, Texas. The manufacturer shall confirm the structure's rated wind speed capacity with the submitted shop drawings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer coordinates shipping and delivery; confirm delivery window with Contractor at least 5 to 7 days prior to shipment.

B. Deliver materials to site on a flatbed truck or equivalent; provide adequate unloading equipment.

C. Store materials immediately upon delivery in a clean, dry environment above ground in a well-ventilated area protected from weather and secured from leaning or toppling, in accordance with manufacturer's storage guidelines.

1.7 WARRANTY

A. Steel Mill Warranty: 50-year non-prorated warranty against rust due to oxidation of the metal arch building, provided by the steel mill (ArcelorMittal NYSE MT) and backed by the manufacturer.

B. Manufacturer Warranty: manufacturer-backed warranty covering shortages, defects, and failure under snow and wind loads, subject to manufacturer's terms and limitations.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Basis of Design: SteelMaster Buildings LLC, 855-400-9193, www.steelmasterusa.com.

B. Substitutions: not permitted. The proprietary panel geometry, panel interlock system, and state-stamped manufacturer engineering require procurement from the basis-of-design manufacturer.

2.2 STEEL MATERIALS

A. All standard metal components of the structure, including but not limited to arch panels, end wall panels, sliding doors, service doors, door frames, headers, wind and snow bracing, specialty foundation base connectors, and other framing materials shall be fabricated from Heavy Commercial AZM180/AZ60 minimum triple spot Galvalume Plus steel in accordance with ASTM A792 and A792M.

B. Steel Properties:

Grade / Class	Gauge Range	Yield Strength (min.)	Tensile Strength (min.)
80, Class 3	13 – 22	80,000 psi	82,000 psi

2.3 Arch Panel System

A. Arch panels shall be precision cold-formed and manufactured to specifications of exacting form and fit.

B. Corrugation: each arch panel shall be 7.5 inches or 9.75 inches deep corrugation with cross corrugations to produce the required curvatures, as established by manufacturer engineering for the specified span.

C. Pre-Fabrication: panels shall be pre-cut, die-punched, and designed to overlap and align with each adjacent panel. All panels are pre-cut to fit and all holes are pre-punched at the factory before delivery.

D. Overlap and Seam: adjacent arch sections shall overlap 9 inches. Bolt holes shall be punched 6.9375 inches apart down each seam with a double row of holes at 9 inches of overlap to create a weather-tight seal. Radius overlap of 3.5 inches ensures a tight seal at panel-to-panel connections.

E. Clear-Span Geometry: the arch system shall be self-supporting with no interior columns, beams, or trusses required, providing 100 percent clear-span usable interior space.

2.4 HARDWARE

A. Bolts: Zinc and Aluminum Hex Flange bolts, nominal diameter 5/16 inch x 3/4 inch, 18 threads per inch. Bolt head consists of a hex flange with an indented head to receive the pre-set sealing washer. Mechanical properties (Grade 2, SAE):

Property	Value	Property	Value
Tensile Strength	74,000 psi	Proof Load Test	55,000 psi
Yield Strength	57,000 psi	Washer Coating	NZF3000S

B. Sealing Washers: Low-Density Polyethylene (LDPE) washer, pre-set into the bolt head. When fastened properly, the washer fits within the bolt's head, sealing the bolt to the building and ensuring a watertight fit. Properties:

1. Tensile Strength: up to 2,000 psi.
2. Water Absorption Potential: less than 0.04 percent when fully exposed and submerged.
3. Brittleness Temperature: not less than -180°F for prolonged periods.
4. Softening Temperature: not less than 212°F for prolonged periods.

C. Nuts: 5/16 inch Serrated Hex Head Locking Nut, Grade 5.

2.5 COATINGS

A. Galvalume Plus® Coating: applied by the continuous hot-dip process; alloy composition of approximately 55 percent aluminum, 43.4 percent zinc, and 1.6 percent silicon by weight.

B. Organic Resin Coating: Galvalume Plus has a dry, clear organic resin coating applied to both sides; once applied, the coating is thermally cured. The cured coating provides a bright, attractive appearance with a fine spangle and gentle sheen and reduces the need for lubricating oils during panel forming.

C. ENERGY STAR: Galvalume Plus coated steel is qualified as an approved roof product by the U.S. EPA ENERGY STAR Program for both low-slope and high-slope applications. Heat reflectivity

shall be rated above the minimum EPA requirement of 0.65. For weathered roofs over three years of age, solar reflectance shall exceed the minimum EPA requirement of 0.50 for maintenance.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the concrete stem wall base, anchor bolt layout, and bearing surface conform to the manufacturer's shop drawings prior to beginning erection. Do not proceed until discrepancies are resolved.
- B. Confirm that anchor bolts are set at correct location, elevation, and projection as shown on the structural and manufacturer's drawings.
- C. Verify that the stem wall top surface is level within tolerances acceptable to the manufacturer and the structural engineer of record.

3.2 INSTALLATION

- A. General: SteelMaster Buildings LLC provides engineering, materials, and delivery only; installation is not included in the manufacturer's scope of work. The General Contractor shall furnish all labor, equipment, and supervision required to erect the prefabricated arch building system in strict accordance with the manufacturer's written installation instructions and approved shop drawings.
- B. Base Connection: install specialty foundation base connectors at anchor bolt locations as detailed on the approved shop drawings. Coordinate base connector installation with the structural engineer of record.
- C. Panel Assembly:
 - 1. Erect arch panels in sequence per manufacturer's instructions.
 - 2. Overlap adjacent arch sections 9 inches; align pre-punched bolt holes.
 - 3. Connect panels using supplied commercial-grade Zinc and Aluminum Hex Flange bolts with pre-set LDPE sealing washers and Grade 5 Serrated Hex Head Locking Nuts.
 - 4. Tighten fasteners to manufacturer's specified torque to engage the sealing washer fully within the bolt head recess.
 - 5. Do not over-torque fasteners; stripped or over-driven fasteners shall be replaced.
- D. End Conditions: install end panels, framing, and any accessory components at portal openings as indicated on the Drawings and shop drawings.
- E. Fan Attachment: provide blocking, reinforcement, or structural connection at the arch apex as required by the mechanical contractor and equipment manufacturer for the large outdoor industrial fan shown on the Drawings. Coordinate load requirements with the structural engineer of record prior to installation.
- F. Lighting Attachment: provide blocking or backing at stem wall face as required for wall-mounted sconce luminaires shown on the Drawings. Coordinate with the electrical contractor.

3.3 FIELD QUALITY CONTROL

- A. Inspect completed arch system for:
 - 1. Consistent panel overlap and alignment at all seams.
 - 2. Proper fastener installation and engagement of sealing washers.
 - 3. Plumb and level base connectors and portal framing.
 - 4. Freedom from distortion, dents, scratches, or coating damage detrimental to appearance or performance.
- B. Building and roof system shall be free of distortion or defects materially detrimental to appearance or performance at completion.

3.4 PROTECTION AND CLEANING

- A. Touch up minor coating damage with manufacturer-supplied touch-up product in accordance with manufacturer's instructions. Areas of significant damage shall be reported to the Architect for determination of corrective action.
- B. Protect completed arch structure from damage by subsequent construction operations.
- C. Remove all debris, packaging materials, and unused fasteners from the site upon completion of installation.

END OF SECTION 133419

