CALALLEN ISD

PROMOTING EXCELLENCE • CREATING THE FUTURE

REQUEST FOR COMPETITIVE SEALED PROPOSALS (RFCSP)
for
FIRE LANE & WALKING TRACK IMPROVEMENTS

CALALLEN INDEPENDENT SCHOOL DISTRICT
4205 WILDCAT DR.
CORPUS CHRISTI, TEXAS 78410

Issue Date: September 6, 2024

Sealed Proposal Submission to:
Calallen ISD
Attention: Blair McDavid
Director of Operations
4205 Wildcat Dr.
Corpus Christi, TX 78410

Deadline for Submission: 9:00 am (CST) September 27, 2024

Pre-Proposal Meeting will be held at the CISD Administrative Office with onsite visits to Magee Intermediate and Wood River Elementary on September 11, 2024 at 9:00 am (CST) Attendance is strongly encouraged.

Sealed Proposal Opening: 9:00 am (CST) September 27, 2024 at Calallen ISD Administration Building Board Room located at 4205 Wildcat Dr. Corpus Christi, TX 78410. Attendance is not required.

The District is an Equal Opportunity employer/program. Historically Underutilized Businesses (HUB's) are encouraged to apply.

REQUEST FOR COMPETITIVE SEALED PROPOSALS (RFCSP)
FOR
FIRE LANE & WALKING TRACK IMPROVEMENTS

NOTICE TO RESPONDENTS

Calallen Independent School District herein referred to as 'the District" is a tax-exempt educational organization which is located in northwest Corpus Christi, Texas. The District has approximately 4,000 students and operates two elementary schools, two intermediate schools, a middle school, and a high school. The school's board is composed of seven active members. The District receives funding from local, state, and federal sources, including taxpayer dollars, the Texas Education Agency (TEA), and the U.S. Department of Education (USDE).

Using the Request for Competitive Sealed Proposals (RFCSP) method of procurement under Texas Government Code Chapter 2269, Subchapter D, the District is soliciting proposals from qualified vendors to provide for the following services. Detailed Technical Specifications and Construction Plans are provided as **Attachment A**.

- Magee Intermediate Fire Lane – conduct caliche road base repairs and paving upgrades.
- Magee Intermediate Walking Track - replace the existing asphalt walking track with concrete, construct a new concrete slab under the existing shade canopy, and construct new flatwork to provide access from the school to designated areas of the playground.
- Wood River Elementary Walking Track - replace the existing asphalt walking track and sidewalk from the bus lane with concrete.
- Vendors will be required to include pricing for all materials and spoils removed from these projects to an approved offsite facility. None of the materials will be retained or stored on Calallen district grounds.

The RFCSP is to be received at the time and location designated and should include all the information requested hereafter. Failure to comply with the requirements contained in this RFCSP may result in a finding that the respondent and proposal is not qualified. The District reserves the right to exclude from consideration any responses that are incomplete or received after the deadline. All times included in this RFCSP are Central Standard Time (CST).

All solicitations are posted to the District's website, and upon request, will be made available to anyone who wishes to submit a response. However, it is the responsibly of the Respondent to provide the District with appropriate company name, authorized representatives, and contact information for the purposes of receiving notices, changes, addenda, or other critical information. Otherwise, potential respondents are responsible for watching for such notifications.

The District may choose to award to a single Respondent, or multiple Respondents. The District makes no guarantee that an award will be made as a result of this RFCSP or any subsequent RFCSP's and reserves the right to accept or reject any or all submittals, waive any formalities, irregularities, or minor technical inconsistencies, or delete any item/requirement form the RFCSP or contract when deemed to be in the District's best interest.

No contract or award shall be executed until it has been reviewed and approved by the School Board in a duly called and posted meeting of the Board. This RFCSP does not commit the District to pay for any costs incurred prior to the execution of the contract and issuance of the District Purchase Order.

The District reserves the right to accept or reject any and all Respondents, request additional information from Respondents, extend the deadline for submission, and cancel and reissue to RFCSP.

The Proposer SHALL NOT contact in any manner, nor deliver gifts or other items, to any District employee (other than the point of contact listed herein for questions and submissions), School Board member, or District consultant during this proposal solicitation, evaluation, and award process without prior approval of the Director of Operations. This restriction extends to "thank you" letters, phone calls, emails and any contact that results in the direct or indirect discussion of the RFCSP and/or Proposal submitted by Respondents. Failure to comply will result in disqualification.

RFCSP ACTIVITIES

Issue & Advertise RFCSP: September 6, 2024
This is the date of the first procurement advertisement in the Corpus Christi Caller Times newspaper, posted to the district website, and initial distribution of RFCSP packet to vendor list.

Advertisement #2: September 13, 2024
This is the date of the second procurement advertisement in the Corpus Christi Caller Times newspaper.

Pre-Proposal Walk-Throughs: September 11, 2024 at 9:00 am (CST)

Deadline for Technical
Assistance Questions: Tuesday, September 27, 2024 at 9:00 am (CST)
This is time and date that any technical questions must be submitted by to the District.

Deadline for Sealed Proposals: Tuesday, September 27, 2024 at 9:00 am (CST)
This is the time and date that all proposals must be submitted and received by the District following the specifications in this document.

Proposals Opening: Tuesday, September 27, 2024 at 9:00 am (CST)
This is the time and date that the District's staff will receive, publicly open, and read aloud the names of the Respondents and all fees and prices stated in the Proposals at the District's administration address: 4205 Wildcat Drive Corpus Christi, TX 78410.

PRE-PROPOSAL WALK-THROUGHS

September 10, 2024 at 9:00 am (CST). Attendance is strongly encouraged.

TECHNICAL ASSISTANCE AND REQUESTS FOR CLARIFICATION/INTERPRETATION:

Proposers must submit questions regarding this procurement in writing via the following point of contact: Blair McDavid, Director of Operations bmcdavid@calallen.org. The deadline for submitting questions is Tuesday, September 27, 2024 at 9:00 am (CST). The questions and answers will be made available to all vendors that will be provided in an email response from the District prior to the submittal deadline. Any clarifications or interpretations of this RFCSP that materially affects or changes its requirements will be issued by the District as an addendum.

It is the responsibility of each Respondent to obtain this information in a timely manner. All such addenda issued by the District before the Proposals are due are part of the RFCSP, and Respondents shall acknowledge receipt of each addendum. The District will consider only those clarifications and

interpretations that Respondents timely submit prior to the submittal deadline. Interpretations or clarifications in any other form, including oral statements, will not be binding on the District and should not be relied on in preparing Proposals.

SUBMITTAL REQUIREMENTS

Responses must be **mailed or hand delivered** to:

Calallen Independent School District
Attention: Blair Mc David
4205 Wildcat Dr., Corpus Christi, TX, 78410
Email: bmcdavid@calallen.org

Proposal envelopes must be plainly marked on the outside with the Respondent's name and address and the following: **SEALED PROPOSAL - DO NOT OPEN**
CALALLEN ISD – FIRE LANE & WALKING TRACK IMPROVEMENTS

The District will not accept responses by oral communication, telephone, electronic mail, telegraphic transmission, fax transmission, or other electronic means. Respondents who hand deliver or mail their proposals, and also provide an electronic copy to any District contact will be disqualified.

Following the deadline for receipt, the District's staff will receive, publicly open, and read aloud the names of the Respondents and all fees and prices stated in the Proposals at the District's administration address: 4205 Wildcat Drive Corpus Christi, TX 78410. Within forty-five (45) days following the date of the opening, District staff will evaluate and rank each Proposal submitted in relation to the selection criteria set forth herein.

Respondents are solely responsible for the timely delivery of their proposal response based on the instructions in this RFCSP. Responses received after the deadline will be rejected and shall be returned to the Respondent(s) unopened. No provisions or exceptions are made for late delivery due to actions or consequences of third-party carriers. The District is not responsible for notifying Respondents of receipt of proposals delivered by third-party carriers.

A complete response will consist of one (1) clearly marked original containing original signatures, and three (3) clearly marked exact copies using standard letter size paper (8.5" x 11") Your proposal must be delivered in a **sealed envelope plainly marked with the RFCSP Title above.** The 'original' response shall prevail in the event of a discrepancy between the Respondent's submissions.

All vendors must utilize the provided Procurement Proposal Response Packet (Attachment B) as means of response to be considered. All pages in the provided packet must be completed and all required signatures present to be considered. Proposals and responses shall be direct, concise, and complete; prepared in a manner that provides a straightforward description of the respondent's ability to meet the requirements set forth in the RFCSP. Emphasis should be on completeness, clarity of content, responsiveness to the requirements, and an understanding of the District's needs. When submitting a proposal, it is required that Respondent s have the necessary professional experience, prior training and applicable professional judgment to perform the activities proposed to supply the services requested by this RFCSP.

Additionally, **Proposer is required to enclose the following documentation to support their proposal**:

- Documentation reflecting proposal scope of work, including details of all products proposed
- Detailed timeline supporting completion of work by the defined Project Schedule benchmarks

SELECTION PROCESS

In accordance with Education Code 44.031(b) and Government Code 2269.155, in evaluating qualified proposals for contract award, the District will use the Best Value Method to determine the awarded vendor(s). In determining Best Value, the District will consider the following evaluation criteria, which will be evaluated based on the following scale:

WEIGHT	CRITERIA
30%	**Proposer's Experience, Reputation and References**
10%	**Proposer's Project Personnel and Qualifications**
10%	**Product and Warranty information**
50%	**Price Proposal**

The district will select the Respondent that submits the proposal that offers the best value for the district based on the selection criteria and weighted values above.

Following the ranking of the Proposals based on the published selection criteria and board action to approve the ranking, the District will attempt to negotiate an agreement with the Respondent that offers the best value to the District. If the District is unable to negotiate an agreement with the selected Respondent, the District will, formally and in writing, end negotiations with that Respondent and begin the negotiation process with the next ranked Respondent in the order of selection ranking until a contract is reached or negotiations with all ranked Respondents end. Please note that the Board may choose to delegate authority to the District's Administration to negotiate and/or execute a contract depending on the specific Board action taken.

GENERAL TERMS AND CONDITIONS

Respondents are advised to review the Standard Short Form of Agreement Between Owner and Contractor where the Basis of Payment is a Stipulated Sum - AIA Documents A105-2017 as modified by the Owner, (attached as **Attachment C**). ***Offeror is directed to pay special attention to the terms and conditions in this proposed form of agreement.*** **The terms and conditions in these AIA documents will govern and to the extent there is any conflict between the terms and conditions below and the terms of the A105-2017 as modified by Owner, the AIA form of agreement will govern.**

1. **Applicability:**
   a) All items listed under the general terms and conditions apply unless otherwise stated in the specifications.
   b) These conditions are applicable and form a part of the contract documents in each commodity and/or service contract and a part of the terms of each purchase order for commodity and/or service included in the specifications and Proposal forms issued herewith.
2. **Laws, Policies, and Procedures:**
   a) This solicitation shall be governed by the following documents unless an exception is otherwise taken within this solicitation. Some documents are incorporated by reference only, and may not be attached as part of this solicitation, though they will be considered enforced as part of the solicitation.

- Texas Education Code Section 44.031.
- Texas Government Code Sections 2253, 2258, 2269
- CISD Policies, including but not limited to CH(Legal), CH (Local), CV (Legal), CV (Local), CVB (Legal), CVB (Local).

3. **Use of District Documents:**
   a) Proposal responses must be submitted on forms provided by the District. No alteration to the District forms will be permitted, including substitutions, additions, deletions, or interlineations, without written consent of the District.
   b) Reproduction of District documents is permitted, so long as reproduced copies are exactly the same in size, format, and content as forms prepared by the District. Any response submitted in altered form may result in rejection of such response at the option of the District.
4. **Development of Specifications:**
   a) Brands of equal quality or type are acceptable. The District reserves the right to make final decisions as comparable items. Be very certain that items upon which you submit and deliver are equal to items listed. Materials that are determined to be not equal shall be returned to the Respondent transportation charges collect.
   b) Whenever an article or material is defined by describing a proprietary product or by using the name of a manufacturer or brand name, the term "or equal" if not inserted shall be implied. The specified article or material shall be understood as indicating the type, function, minimum standard of design, efficiency, and quality desired and shall not be construed as to exclude other manufactured products of comparable quality, design, and efficiency.
   c) The District reserves the right to purchase additional quantities above that stated at the same unit price unless otherwise specified by the Respondent.
   d) The District reserves the right to modify conditions and specifications by mutual agreement with the selected supplier, both at the time of acceptance of this Proposal offer as so modified and subsequent thereto.
5. **Inspection of Documents:**
   a) Before submitting a response, each Respondent shall thoroughly examine the Proposal documents and project sites (if applicable) to ensure that the equipment and/or services submitted meet the intent of these specifications.
   b) Each Respondent receiving forms prepared by the District is responsible for inspection of District documents for missing or illegible pages, or other indication of incomplete information provided to the Respondent. The failure or neglect of Respondent to receive or examine any contract document, form, instrument, addendum, or document shall in no way relieve Respondent from obligations with respect to his or her response. The submission of a response shall be taken as prima facie evidence of compliance with this section. Receipt of addenda to the Proposal documents by a Respondent must be acknowledged in the response.
   c) The District is not responsible for incomplete response packets.

6. **Withdrawal or Modification or Correction of Submitted Proposal Responses:**
   a) Any response, which has been submitted, may be withdrawn prior to the deadline. A request to withdraw a Proposal response must be in writing and be received by the District prior to the receiving deadline.
   b) No amendment, addendum, or modification shall be accepted after the deadline for submitting a Proposal response to the District. If a change to a response that has been submitted is desired, the submitted response must be withdrawn and the replacement response submitted prior to the receiving deadline.
   c) No Respondent may have more than one Proposal response on file with the District.

d) After the scheduled time for receiving Proposal responses, responses may not be withdrawn for a period of sixty (60) days.
e) Any contract entered into can be modified or rescinded only by a written document signed by both of the parties or their duly authorized agents.
f) Any erasures and/or corrections to Proposals, whether executed prior to or subsequent to the original Proposal submittal shall be authenticated by affixing in the margin immediately opposite the correction and the initials of the agent(s) signing the Proposal response.

7. Proposal Cost:

a) The District shall not be liable for any cost incurred by a Respondent in the preparation or delivery of its response to this request for competitive sealed proposal or for any other cost incurred because of the request for proposal.

8. Proposal Disclosure:

a) The District is a government body subject to the Texas Public Information Act. Responses submitted to the District as a result of this solicitation are subject to release as public information after contracts are executed or the procurement is terminated. In the event a Respondent desires to claim portions of submitted response are exempt from disclosure, it is incumbent upon the Respondent to identify those portions in a transmittal letter. The transmittal letter must identify the page, the particular exemption(s) from disclosure, and the contended justification for exemption upon which it is making its claim. The District will consider a Respondent's request(s) for exemption from disclosure; however, the District will not be bound by the assertion that a page contains exempt material. An assertion by a Respondent that an entire volume of its response is exempt from disclosure will not be honored.
b) Until a contract resulting from this request for Proposal is executed, no employee, agent, or representative of any Respondent shall make available or discuss its response with the press, any elected or appointed official or officer of the District, or any employee, agent, or other representative of the District, unless specifically allowed to do so in writing by the District for the purposes of clarification, evaluation, and/or awarding the Proposal.
c) Respondents shall not issue any news release(s) or make any statement to the news media pertaining to this request for Proposal or any Proposal and/or contract or work resulting therefrom without the prior written approval of the District and then only in cooperation with the District.
d) By signing this Proposal response, a Respondent affirms he/she has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the Proposal response submitted.
e) Respondent shall note any and all relationships which might be a conflict of interest and include such information with their response.
f) By signing this Proposal response, a Respondent affirms, to the best of his/her knowledge, the response has been arrived at independently, and is submitted without collusion with anyone to obtain information or gain any favoritism that would in any way limit competition or give them an unfair advantage over other Respondents in the award of this Proposal.
g) If a Respondent's response is accepted by the District, the Respondent shall not advertise or publish, without the District's prior consent, the fact the District has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state, or local government.

9. Delivery and Materials:

a) The Respondent shall store and protect materials and equipment in accordance with the manufacturer's recommendations.

b) The Respondent, in the event of damage, shall immediately make all repairs and replacements necessary to the approval of Calallen ISD, with no additional cost to the District.
c) All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m. Monday through Friday, unless authorized by the Purchasing Coordinator or designee.
d) The District shall not be responsible for any "hidden damage" for a period dating from the date of delivery until statute of limitations as provided by the Uniform Commercial Code.
e) If applicable, delivery shall provide, at no cost, at least one copy of any applicable Manufacturer's Safety Data Sheets (SDS) with each shipment, and upon request. If OSHA, federal, or state laws provide for additional requirements, those requirements are in addition to the SDS requirement.
f) The Respondent shall retain all portable and detachable parts or portions of installation until final completion of work. These parts shall be delivered to the District 's Representative or designated District site and acknowledged as itemized receipts to obtain request for final payment.

10. Licenses, Permits, and Taxes:

a) The price or prices for the services shall include full compensation for all taxes, permits, and licenses that the Respondent is or may be required to pay.

11. Invoice, Payment, and Inspection:

a) The Respondent shall provide an invoice showing labor hours performed by labor description and the actual invoices for all materials purchased before payment will be issued.
b) The District will pay the Contractor's actual cost plus the contracted mark up for materials. All items purchased (i.e., tools) and billed to the District will remain the property of the District.
c) Federal excise taxes, state taxes, or sales taxes shall not be included in the invoiced amount. The District is not liable for these taxes. The District will furnish a tax exemption certificate upon request.
d) All valid and complete invoices received by the District will be paid within thirty (30) days of the District's receipt of the deliverables or of the invoice, whichever is later.
e) Payment terms, including the rate of interest that shall accrue on any overdue payments, are subject to Chapter 2251 of the Texas Government Code.
f) The Respondent shall demonstrate work completed meets the requirements of Galveston ISD.
g) The District Representative shall give final approval to all work performed.
h) The Respondent will email all or fax all inspection reports or other applicable documents to the District Representative for processing.

12. Award of Contract:

a) The District reserves the right to accept or reject, in part or in whole, any and all Proposal responses and to waive any irregularities or informalities in any Proposal or in the Proposal process. The contract will be awarded to a responsible Respondent. Whose responses are most advantageous to the District, considering the relative importance of price and the other evaluation criteria which may be included in the proposal.
b) Award of the contract shall be made to the bidder who provides goods or services at the best value for the District taking into consideration the relative importance of price and other factors set forth below. Best value evaluation criteria will be grouped into percentage factors.
c) The District may, by written notice to contractor, cancel the contract if it is found by the District that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by contractor or any agent or representative of contractor, to any employee or members of the Board of Trustees with a view toward securing an order or securing favorable treatment with

respect to the awarding or amending, or the making of any determinations with respect to the performing of such order.

d) A Respondent may be disqualified before or after an award is made, upon evidence of collusion with the intent to defraud, or perform other illegal activities for the purpose of obtaining an unfair competitive advantage.

e) It is expected that all contact by Respondent with any District personnel and/or members of the Board of Trustees begin with the issuer of this Proposal. Failure to follow this procedure is grounds for eliminating the Respondent from any further consideration of awarding the contract. The recommendation to award the Proposal will be made to the District Board of Trustees. No contract shall be executed until it has been reviewed and approved by the Board of Trustees in a duly called and posted meeting of the Board.

f) In connection with the performance of work under the contract, the Respondent agrees to comply with the Fair Labor Standard Act, Equal Opportunity Employment Act, and all other applicable federal, state, and local laws, regulations, and executive orders to the extent that the same may be applicable.

13. Insurance:

a) If requested the successful Respondent shall be required to provide the District with copies of certificates of insurance, named as additional insured. Certificates of Insurance, name and address of Respondent, the limits of liability, the effective dates of each policy and policy number shall be delivered to the District prior to commencement of work. The insurance company shall be licensed in the State of Texas, certificate forms shall be approved by the Texas Department of Insurance and shall be acceptable to the District. All policies of insurance shall waive all rights of subrogation against the District, its officers, employees, and agents.

b) The required insurance coverages and limits are listed in the draft of form agreement provided with this RFCSP.

14. Prevailing Wage Rate:

a) Respondents are required to comply with Texas Government Code, Chapter 2258 Prevailing Wage Rates, with respect to payment of prevailing wage rates for the construction or improvements, paid for in whole or in part from public funds, without regard to whether the work is done under public supervision or direction. A worker is employed on a public work if the worker is employed by the Respondent or any subcontractor in the execution of the contract for the project.

b) A worker employed on a public work by or on behalf of the District shall be paid no less than the general prevailing rate of per diem wages for the work of similar character in the locality in which the work is preformed, and not less than the general prevailing rate of per diem wages for legal holiday and overtime work.

c) The District has adopted the federal Davis-Bacon wage rates for the use in Texas pursuant to and in accordance with the Texas Government Code, Section 2258.022. The District's prevailing wage rate is provided within Attachment C, the AIA 105-2017 contract.

d) The Respondent or subcontractor who violates Texas Government Code Section 2258.023 shall forfeit as a penalty to the District, $60.00 for each worker employed for each calendar day, or portion thereof, such worker is paid less than the stipulated rates for any work done under the contract by him, or by any subcontractor under him.

e) Nothing herein contained, however, shall be construed to prohibit the payment of more than the prevailing rate of wages to any worker employed on the work.

15. Service-Related Contracts:

a) The Respondent warrants it shall have available the necessary personnel, organization, equipment, and facilities to perform all the services and /or provide all the goods required under this solicitation.

b) The Respondent shall employ orderly and competent employees trained in the required services to be provided under this solicitation.

c) The Respondent, its employees, subcontractors, and subcontractor's employees may not use or possess any firearms, intoxicating beverages, tobacco, illegal drugs, or controlled substances while on the District's property, nor may such workers be intoxicated, or under the influence of alcohol or drugs.

d) The District reserves the right to prevent, forbid, and/or temporarily or permanently bar any Respondent, its employees, subcontractors, and subcontractor's employees from any district facility for whatever reason it determines necessary to maintain safety and orderly operations.

e) If applicable under this solicitation, Respondent, its employees, subcontractors, and subcontractor's employees shall have and maintain any and all required licenses and/or certifications for the duration of the contract. Additionally, the District reserves the right to require proof of any such requirement at any time during the contract term.

f) The Respondent, its employees, subcontractors, and subcontractor's employees shall fully comply with all applicable federal, state, and local safety and health laws, ordinances, rules and regulations in the performance of the services, including but not limited to those imposed by the District and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirements shall govern.

16. Warranties

a) Warranty conditions for all supplies and/or equipment shall be considered manufacturer's minimum standard warranty or a minimum of one (1) year guarantee, whichever is greater, unless otherwise agreed to in writing. Respondent shall be an authorized dealer, distributor, or manufacturer for the product. All equipment submitted shall be new unless clearly stated in writing.

b) If a Respondent's response is accepted by the District, the price to be paid by the District shall be that contained in Respondent's response which Respondent warrants to be no higher than Respondent's current prices on orders by others for products of the kind and specification covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Respondent breaches this warranty, the prices of the items shall be reduced to the Respondent's current prices on orders by others, or in the alternative, the District may cancel this contract without liability to Respondent for breach or Respondent actual expense.

c) If a Respondent's response is accepted by the District, the Respondent warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Respondent for the purpose of securing business. For breach or violation of this warranty, the District shall have the right in addition to any other right or rights to cancel the contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission percentage, brokerage, or contingent fee.

d) If a Respondent's response is accepted by the District, the Respondent shall not limit or exclude any implied warranties and attempt to do so shall render the contract voidable at the option of the District. Respondent warrants that the goods furnished will conform to the specifications, drawings, and descriptions listed in this request for Proposal, and to the sample(s) furnished by

the Respondent, if any. In the event of a conflict between the specifications, drawings, and descriptions, the specification shall govern.

e) If a Respondent's response is accepted by the District, the Respondent warrants the product sold to the District shall conform to the standards promulgated by the U.S. Department of Labor under Occupational Safety and Health Act (OSHA). In the event the product does not conform to OSHA standards, the District may return the product for correction or replacement at the Respondent's expense. In the event the Respondent fails to make the appropriate correction within a reasonable time (15 working days), correction made by the District will be at the Respondent's expense.

17. Indemnification:

a) The Respondent will defend, indemnify, hold harmless, and exempt the District, its officers, agents, and employees from and against any and all suits, actions, legal proceedings, claims, demands, damages, costs, expenses, and attorneys' fees incident to any work done in the performance of this contract arising out of a willful or negligent act or omission of the Respondent, its officers, agents, or employees.

18. Force Majeure:

a) Neither party shall be deemed to have breached any provision of this contract as a result of force majeure. The term force majeure as referenced herein, shall mean acts of God, strikes, lockouts, or other industrial disturbances, act of public enemy, orders of any kind of government of the United States or the State of Texas or any civil or military authority; insurrections; riots; pandemics, epidemics; landslides; land sinkage; lightning; earthquake; fires; hurricanes; storms; floods; washouts; droughts; arrests; restraint of government and people; civil disturbances; explosions; breakage or accidents to machinery, pipelines or canals, or other causes not reasonably within the control of the party claiming such inability.

19. Non-Appropriate Clause:

a) Any/all contracts exceeding one (1) year will require a standard non-appropriation clause. Renewal of contracts will be in accordance with Local Government Code 271.903 concerning non-appropriation of funds for multi-year contracts. The Board of Trustees of District reserves the right to rescind the contract at the end of each fiscal year if it is determined that there are insufficient funds to extend the contract.

20. Uniform Commercial Code:

a) All contracts and agreements between Respondent and the District shall strictly adhere to the statutes as set forth in the Uniform Commercial Code as last amended by the American Law Institute in the National Conference of Commissioners on Uniform State Laws. Reference: Uniform Commercial Code, Official Text.

21. Non-Performance:

a) Immediate non-performance of the Respondent in terms of specifications shall be a basis for the termination of the contract.

b) If, at any time, the Respondent fails to fulfill or abide by the terms, conditions, or specifications of the contract, the District reserves the right to: a) purchase on the open market and charge the Respondent the difference between contract and actual price, or b) deduct charges from existing invoice totals due at the time.

c) The District shall have the right to cancel for default all or any part of the undelivered portion of this order if Respondent breaches any of the terms hereof including warranties of Respondent or if the Respondent becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which the District may have in law or equity.

22. Termination of Contract:

a) The District shall have the right to terminate the contract, in whole or in part, for its own convenience and without cause any time upon thirty (30) days prior written Notice of Termination. Upon receipt of a Notice of Termination, the Respondent shall promptly cease all further work pursuant to the contract award, with such exceptions, if any, specified in the Notice of Termination.

b) The District will pay the Respondent, to the extent of funds appropriated or otherwise legally available for such purposes, for all goods delivered and services performed, and obligations incurred prior to the date of termination in accordance with the terms hereof.

23. Venue:

a) This Proposal shall be constructed and enforced in all respects in accordance with the laws of the State of Texas and the laws of the United States applicable to transactions in Texas. Exclusive venue with respect to any legal action relating to or arising under this Proposal shall lie in the District Court(s) of the State of Texas sitting in Galveston County, Texas, Respondent hereby expressly consenting to the jurisdiction of such courts.

SAFETY & SECURITY MEASURES

Student, instructor and all staff safety and campus security are of the upmost importance to the District, and safety and security measures are required by state law or prescribed for in District policy and procedures. Adherence to the District safety & security measures while on District premises is required. Each campus presents security concerns in terms of site access, traffic, classroom and non-classroom related functions. The work performed at each campus is directive in nature and work rules for each project can vary depending on the scope of work. CISD has responsibilities to the students, staff, the State of Texas and others to ensure that safety measures are strictly applied on each project.

1. Requirements:

a) The Contractor, Subcontractor, their agents, and all others who perform Work on any District campuses are required to observe and abide by the campus security.

b) The Contractor, Subcontractors, and their agents **shall comply with the criminal history records checks requirements** of Section 13.3 Criminal History Records Checks of the AIA Document A105 – 2017 Standard Short Form of Agreement Between Owner and Contract found in Appendix 1 of this RFCSP.

c) Contractor Supervisor and Designated Support Personal:

i. Supervisor shall be present for all activities. If Owner finds out that the supervisor or their designated staff are not in responsible charge of the worksite, Owner may terminate work activities at the Contractors expense until such time the appropriate personnel are back in responsible charge.

ii. Supervisor is responsible for securing the project site each day after work and shall confirm that the site is safe and secure. Check all interior and exterior doors, floor hatches, roof hatches, roof access doors, gates, temporary barricades and the like.

iii. Supervisor is responsible for verifying that the project and site are clean after work each day. All trash is disposed of in approved containers. Floor surfaces are clean. Campus grounds are clear and all holes are covered up.

d) RAPTOR Checks:

i. All contractor personnel shall obtain a RAPTOR check upon their first day of work on the project. The Contractor is required to obtain a replacement badge if their badge gets damaged or becomes non-legible. All personnel will be issued a paper badge with their name, photo, and date of issue. This badge shall be affixed to a

badge clip that shall be affixed to their uniform shirt in the upper torso area and shall be worn at all times.

ii. Contractor shall obtain a new Raptor badge every month around the 1st day of the month regardless of the initial badge issued date. Contractor shall contact the Maintenance Office and schedule the quantity of personnel requiring retesting in advance so as to not overload the maintenance office regular school activities.

e) Owner reserves the right to question all Contractor personnel and to perform additional background checks and safety and security screening as applicable at their discretions for any persons working on school district property.

f) Campus Check-in Procedures:

i. The Supervisor or designated staff shall check in at the main office of each school campus each workday and shall be responsible for facility access and control direct sub-contractor supervision. Contractor personnel and sub-contractors are not required to check-in to a campus that has a Supervisor in responsible charge.

ii. All employees must check-in at the Maintenance for the 1st day at work and at the 1st of the month.

2. Code of Conduct:

a) All Contractor, Subcontractors, and their agents shall be required to wear company uniforms with company name and logo clearly marked, RAPTOR tags that are currently up to date, and all appropriate and applicable safety gear such as hard hats at all times when on District premises. All attire shall be clean and presentable at the start of work each day.

b) Interaction with students, faculty, and staff is discouraged. The District will not tolerate "cat-calling," "whistling," "profanity," or derogatory remarks.

c) No smoking or tobacco products, illegal drugs or weapons or firearms are allowed on District premises.

PROCUREMENT SPECIFICATIONS & INSTRUCTIONS TO RESPONDENTS:

ENCLOSURE TABLE OF CONTENTS

- **Attachment A:** Technical Specifications, and Construction Plans
- **Attachment B:** Procurement Proposal Response Packet
- **Attachment C:** Standard Short Form of Agreement Between Owner and Contractor, AIA Document A105-2017, as Modified by the Owner (Provided for informational purposes only)

SCOPE OF WORK SUMMARY

The District is soliciting proposals from qualified vendors to provide for the following services. Detailed Technical Specifications and Construction Plans are provided as **Attachment A**.

- Magee Intermediate Fire Lane – conduct caliche road base repairs and paving upgrades.
- Magee Intermediate Walking Track - replace the existing asphalt walking track with concrete, construct a new concrete slab under the existing shade canopy, and construct new flatwork to provide access from the school to designated areas of the playground.
- Wood River Elementary Walking Track - replace the existing asphalt walking track and sidewalk from the bus lane with concrete.
- Vendors will be required to include pricing for all materials and spoils removed from these projects to an approved offsite facility. None of the materials will be retained or stored on Calallen district grounds.

EXAMINATION OF THE CONTRACT DOCUMENTS AND SITE

Each Proposer, before submitting their Proposal, shall fully examine and acquaint themselves with the Contract Documents and the sites of the proposed Project. Offeror shall make such investigations as they may deem necessary to fully inform themselves of the existing conditions, facilities, difficulties, restrictions, and requirements incident to completion of the Project under the terms of the Contract.

Failure of the Offeror to acquaint themselves adequately with the site and such conditions, facilities, difficulties, restrictions, and requirements will not relieve them of their obligation to perform the entire Contract at the price set forth in this proposal.

ESTIMATED PROJECT BUDGET

$525,000.00

OWNER'S CONTINGENCY

The respondent shall provide for and include an **owner's contingency of $5,000.00.** The respondent shall include the amount in their proposal as a contingency to cover the cost of hidden, concealed, or otherwise for the betterment of the project as deemed by the Owner. The respondent shall be allowed to recover all costs related to the completion of work under this contingency, however, no overhead or profit will be allowed. All remaining contingency balance shall be returned to Owner at 100% without fee or charge.

PROJECT SCHEDULE

The following indicates the anticipated schedule of the project.

Contract Award	October 14, 2024
Notice to Proceed	October 15, 2024
Commence Project Physical Work Start	November 1, 2024
Substantial Completion of All Work	February 3, 2024

PROPOSAL REQUIREMENTS

All Proposers must utilize the provided Procurement Proposal Response Packet as a means of response to be considered (Attachment B). All pages in the provided packet must be completed and all required signatures present to be considered. Proposals and responses shall be direct, concise, and complete; prepared in a manner that provides a straightforward description of the respondent's ability to meet the requirements set forth in the RFCSP. Emphasis should be on completeness, clarity of content, responsiveness to the requirements, and an understanding of the District's needs. When submitting a proposal, it is required that Respondents have the necessary professional experience, prior training and applicable professional judgment to perform the activities proposed to supply the services requested by this RFCSP.

Additionally, **Proposer is required to enclose the following documentation to support their proposal:**

- Documentation reflecting proposed scope of work, including plans, specifications, and details of all products proposed
- Detailed timeline supporting completion of work by the defined Substantially Complete benchmarks

ATTACHMENT A

TECHNICAL SPECIFICATIONS AND CONSTRUCTION PLANS

PLEASE NOTE – The Drawings, Plans, and Prints enclosed **are not As-Builts**. Each Proposer, before submitting their Proposal, shall fully examine and acquaint themselves with the Contract Documents and the sites of the proposed Project. Offeror shall make such investigations as they may deem necessary to fully inform themselves of the existing conditions, facilities, difficulties, restrictions, and requirements incident to completion of the Project under the terms of the Contract.

TECHNICAL SPECIFICATIONS

FOR THE CONSTRUCTION OF

PAVING, GRADING,

& STORM SEWER IMPROVEMENTS

TO SERVE

CALALLEN ISD WOOD RIVER WALKING TRACK

Owner:
Calallen Independent School District
4205 Wildcat Drive
Corpus Christi, TX 78410

09 SEPTEMBER 2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL C. YORK, P.E. 124938. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Prepared By:

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING

9708 S. Padre Island Dr., Ste A200
Corpus Christi, Texas 78418
Texas Engineering Firm F-22063
Job No. 1099-24-03

SECTION 00 01 10
TABLE OF CONTENTS

SECTION 01 45 23
TESTING REQUIREMENTS

PART 1 – GENERAL

1.01 Summary

A. This specification shall govern the testing requirements for civil site work associated with the project. In the event the governing authority's testing requirements are more stringent than the requirements set forth herein the governing authority's requirements shall be followed.

PART 2 – PRODUCTS

2.01 Supplier Mix Data & Certifications

A. Mix Designs, furnished by supplier, shall be presented to Engineer
   1. Surface Course Mix Designs
      a. 1 per mix design
B. Mill Certificates, furnished by supplier, shall be presented to Engineer
   1. Lime Stabilized Subgrade
      a. 1 per load
   2. Flexible Base
      a. 1 per load

PART 3 - EXECUTION

3.01 Testing Requirements

A. Concrete Strength Test (@ 28 days unless noted otherwise on plans)
   1. Concrete Pavement
      a. 1 set of 3 per 75 Cubic Yards for each pavement type (Light Duty, Heavy Duty, Dumpster Pad, etc.)
   2. Concrete Sidewalk
      a. 1 set of 3 per 4,000 Square Feet
   3. Curb or Curb & Gutter
      a. 1 set of 3 per 500 Linear Feet
   4. Concrete Inlets
      a. 1 set of 3 per every 3 inlets
B. Field Sieve Analysis after final mixing
   1. Lime stabilized Subgrade
      a. 1 per day
C. Eades & Grim Test
   1. Lime stabilized Subgrade
      a. 1 for each soil type
D. Atterberg Limits & Gradation Test
   1. Caliche
      a. 1 per 5,000 Cubic Yards
E. Los Angeles Abrasion Loss Test
   1. Flexible Base
      a. 1 per 5,000 Cubic Yards
F. Hot Mix Asphalt Concrete Tests
   1. Lab site sampling, Molding, Lab Density, Stability, Maximum Theoretical Specific Gravity (Rice Gravity), Extraction
      a. 1 per project or 1 per 500 tons
   2. Cored In-Place Density, Air Voids, Thickness of Compacted Mix
      a. 1 per 2,500 Square Yards

SECTION 01 57 23

STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for temporary Storm Water Pollution Prevention.

B. The work described in this section is applicable to all sections of the contract documents. All work that would disturb the existing site conditions or present the potential for site runoff shall adhere fully to this specification section.

1.02 References *The latest edition of the referenced item(s) below shall be used and obtained by the Contractor*

A. The TCEQ TPDES Construction General Permit (CGP) No. TXR150000 effective March 5, 2018 (or most current version). This specification requires compliance with all provisions of the TCEQ TPDES permit.

B. The project SWPPP provided with the construction plans.

C. City of Corpus Christi ordinance 022941, *Storm Water Quality Management Program*.

D. Any applicable local ordinance or regulation pertaining to storm water pollution control or prevention.

1.03 Submittals

A. Submittals of products used in structural and non-structural controls shall be made through established procedures prior to installation on the site. The Contractor shall make available physical samples and product literature on any material used in structural or non-structural controls during the course of the project prior to its implementation in the field.

B. Construction and shop drawings containing deviations from local, state, and federal standards and regulations or special designs shall be sealed by a Registered Professional Engineer of the State of Texas and retained and paid by the Contractor.

1.04 Definitions *The words defined in this section shall for the purpose of this specification have the meanings ascribed to them.*

A. BMP – Best Management Practices

B. CSN – Construction Site Notice (Large CSN for large sites; Small CSN for small sites)

C. EHS – Environmental Health and Safety

D. NOI and NOT – Notice of Intent and Notice of Termination for TPDES permits

E. ODR – Owner Designated Representative

F. Land Disturbance – Any activity which affects the ground surface and/or vegetation

G. SWPPP – Storm Water Pollution Prevention Plan

H. TCEQ – Texas Commission on Environmental Quality

I. TPDES – Texas Pollutant Discharge Elimination System

J. Large Construction Activities – Construction activities including clearing, grading and excavating that result in land disturbance equal to or greater than 5 acres of land.

K. Small Construction Activities - Construction activities including clearing, grading and excavating that result in land disturbance equal to or greater than 1 acre and less than 5 acres of land.

L. Under 1 Acre Construction Activities - Construction activities including clearing, grading, excavating, or any activity which affects the ground surface and/or vegetation that results in land disturbance under 1 acre of land

1.05 Quality Assurance

A. In order to minimize the discharge of pollutants to storm water, the Contractor shall implement all permanent and temporary site controls according to TPDES Guidelines, as set forth by the TCEQ.

B. Implementation of site controls shall be performed by a qualified contractor experienced in the proper installation of such devices in accordance with manufacturers' specifications, and in keeping with both recognized Best Management Practices (BMPs), and TPDES regulations.

C. The Contractor shall inspect all BMPs at regular intervals as specified in the Storm Water Pollution Prevention Plan for this project. Use standard Owner Inspection forms for each inspection. Record all deficiencies of site controls and take immediate action to correct any deficiencies recorded. Keep records of inspections current and on file, available for review by EPA, TCEQ, MS4 Operator and Owner.

PART 2 - PRODUCTS

2.01 Materials *Specific site control devices are identified in the SWPPP provided with the construction plans. Where such devices are indicated, their material composition shall comply with this section. Refer to the construction plans for details of listed materials. Projects may propose alternative BMPs, as long as they are effective at performing the desired functions.*

A. Temporary Sediment Control Fence (Silt Fence)
B. Inlet Protection
C. Rock Filter Dam (Rock Check Dam)
D. Stabilized Construction Entrance/Exit
E. Tracking Control Mat
F. Mulch Sock
G. Triangular Filter Dikes: for use on surfaces or in locations where standard silt fence cannot be implemented
H. Concrete, Paint and Stucco Washout: shall be used for containment of fluids from concrete truck washout wastes.
I. Temporary Storage Tanks: shall be used for temporary storage of fuels on the construction project site.
J. Diversion Dike
K. Interceptor Swale
L. Erosion Control Matting: shall be used on steep slopes, in drainage swales, and in high traffic pedestrian areas of barren soil. It shall include one or more of the following:
    1. Jute Mat – a plain fabric made of jute yarn, woven in a loose and simple manner, with a minimum unit weight of 2.7 pounds per square yard. Width shall be as required for the dimensions of the area to be covered.
    2. Wood Fiber Mat – a mat composed of wood fibers, which are encased in nylon, cotton or other type of netting
    3. Synthetic Webbing Mat – a mat manufactured from polyvinyl chloride or polypropylene monofilaments, which are bonded together into a three-dimensional web to facilitate erosion control and/or re- vegetation.
    4. Organic Mulches: shall be used for covering bare soil, retaining moisture under existing vegetation being preserved, and for absorbing the energy of compaction caused by foot or vehicular traffic. Refer to Exhibit M.
M. Any other materials indicated in the SWPPP.

PART 3 - EXECUTION

3.01 General Information

A. The Contractor shall provide a complete installation of all site control devices and measures (BMPs) indicated in the SWPPP, and as specified herein. These BMPs must be confirmed as fully operational with the Owner before any work that disturbs the site can begin.
B. As an alternative to the BMPs indicated in the SWPPP, and as specified herein, the Contractor may propose alternate BMPs that perform the same function as the indicated BMP but may be of a different configuration, materials, or type for review and approval by Engineer. Installation of alternate BMPs shall not proceed until reviewed and approved by Engineer.
C. The Contractor shall provide inspection and monitoring of controls in place and shall perform all revisions and updating of SWPPP. An accurate, chronological record of all Contractor inspections, revisions and additional controls shall be kept on file at the project site, for review, with a copy of the SWPPP.
D. The Contractor shall submit the NOT to the Owner after all disturbed areas are re-established (stabilized) with vegetative cover following completion of construction. Following acceptance of stabilized areas, all site controls that are no longer necessary shall be removed.

3.02 Contractor Responsibilities

A. This project requires implementation of storm water Best Management Practices for control devices and monitoring by the Contractor to comply with all provisions of the SWPPP developed for the project by the Engineer. The Contractor must fulfill all TPDES regulatory requirements, including the filing of the NOI and NOT or signing and posting of the CSN.
B. The Contractor shall provide signatures of a Corporate Officer for the NOI, Large CSN, Small CSN, NOT and any other forms or applications as required by the TPDES Construction General Permit

TXR150000. The Contractor shall also provide delegated authorization to sign reports per 30 TAC 305.128. Individuals conducting site inspections shall be qualified to thesatisfaction of the Owner.

C. The Contractor shall insert a copy of the signed NOI, and Large or Small CSN into the SWPPP book to be kept at the jobsite.
D. The SWPPP book kept at the jobsite shall also contain the following:
   1. A letter delegating signature authority to the field personnel for the Contractor
   2. A copy of the TPDES permit when received
   3. A copy of the Large or Small CSN
   4. A copy of the SWPPP provided with the construction plans
E. The Contractor shall review the SWPPP and verify existing conditions at the site before determining scope of implementation of site controls. Site survey and site plan drawings shall be used for additional reference. The Contractor shall notify the Owner, in advance, of this site review to allow for Owner participation.
F. The Contractor shall construct a Project SWPPP sign and place it at the main entrance to the project site. This sign shall include the NOI and TPDES permit along with the TCEQ TPDES Large or Small CSN, depending on the size of the construction project.
G. The Contractor shall complete the SWPPP Project Start-up form and shared SWPPP Acceptance Form as required before commencing soil disturbing activities.
H. The Contractor shall provide all material, labor, equipment and services required to implement, maintain and monitor all erosion and sedimentation controls in compliance with the SWPPP. All controls implemented by the Contractor shall comply with the TPDES regulations as issued by the TCEQ with most current version. These controls shall remain in operation until project completion and re-establishment of the site to pre-existing conditions (or improved) or longer as directed by the ODR. The work shall include, but not be limited to, the following:
   1. All earthwork as required to implement swales, dikes, basins and other excavations for temporary routing of utilities, to protect against erosion or sediment-laden (polluted) storm water runoff.
   2. All structural controls as shown or specified, including silt fences, sediment traps, stabilized construction entrance, subsurface drains, pipe slope drains, inlet/outlet protection, reinforced soil retention, gabions, rock berms, etc.
   3. All non-structural controls as shown or specified, including temporary or permanent vegetation, mulching, geotextiles, sod stabilization, preservation of vegetative buffer strips, preservation/protection of existing trees and other mature vegetation.
   4. All modifications and revisions to SWPPP necessary to meet changing site conditions and to address new sources of storm water discharges, as the work progresses.
   5. All maintenance and repair of structural and non-structural controls in place shall continue until final stabilization is achieved or as directed by the ODR.
   6. Weekly site inspections, as required by the SWPPP, of pollutant sources, including hazardous sources, structural and non-structural controls, and all monitoring of SWPPP revisions and maintenance of inspection records.
   7. Removal of all structural and non-structural controls as necessary upon completion, and only after final stabilization is achieved.
   8. Filing of NOT within 30 days of final stabilization being achieved and being approved by the Owner, or of another Operator assuming control of the un-stabilized portions of the site.
   9. Refer to the SWPPP for additional requirements to ensure compliance with TPDES regulations.

3.03 Inspection

A. Inspection and maintenance is required for all areas disturbed by construction activity and for all erosion and sediment controls that are used. Inspection shall be performed at least once a week, and within 24 hours of a storm event of 0.5 inches or greater for as long as a portion of the site is disturbed.
B. The Contractor should select one individual who will be responsible for the inspection and maintenance of the system. The inspector will look at the control measures and determine if they are performing correctly and effectively.
C. Reports shall be prepared and stored in accordance with the CGP.

D. Additional information may be found on the SWPPP provided with the Construction plans.

SECTION 02 06 14
GEOTECHNICAL REPORT

PART 1 – GENERAL

1.01 Summary

A. Included with this specification is the Geotechnical Report prepared for this project.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

GEOTECHNICAL ENGINEERING REPORT

WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas
UES Project No. G124174
June 28, 2024

Prepared for:

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Prepared by:

UES l 6817 Leopard St., Corpus Christi, TX 78409 l office: 361.883.4555 l fax: 361.883.4711

June 28, 2024

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Re: Geotechnical Engineering Report
WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas
UES Project No. G124174

Dear Mrs. Lorenz:

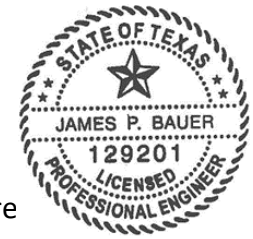
UES Professional Solutions 45, LLC., (hereinafter "UES") has performed a geotechnical exploration for the project referenced above. This study was authorized by the issuance of Calallen ISD Purchase Order Number 8882400370 dated April 23, 2024 and performed in accordance with UES Proposal No. CGP032524C (Revision 1) dated April 23, 2024.

The results of this exploration, together with our recommendations, are presented in the accompanying report, an electronic copy of which is being transmitted herewith.

UES appreciates the opportunity to be of service on this project. If we can be of further assistance, such as providing materials testing services during construction, please contact our office.

Sincerely,

UES Professional Solutions 45, LLC.
TEXAS PROFESSIONAL ENGINEERING FIRM NO. 2101



James Bauer, PE
Gulf Coast/South Texas Are

Karl G. Crenwelge, P.E.
Senior Project Engineer

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of a subsurface exploration, laboratory testing program, and geotechnical analysis for the Wood River Elementary Walking Track project to be located at 15118 Dry Creek Drive in Corpus Christi, Texas.

Purpose and Scope

The purpose of this exploration was to evaluate the soil and groundwater conditions at the site and to provide geotechnical recommendations suitable for the proposed project. The scope of the exploration and analysis included the subsurface exploration, field and laboratory testing, engineering analysis and evaluation of the subsurface conditions, provision of geotechnical recommendations, and preparation of this report.

The scope of services did not include an environmental assessment. Any statements in this report, or on the boring logs, regarding odors, colors, unusual or suspicious items or conditions are strictly for the information of the client.

General

The exploration and analysis of the subsurface conditions reported herein are considered sufficient in detail and scope to provide geotechnical recommendations for the proposed project. The recommendations submitted herein are based on project details provided by the client and the soil information obtained at the boring locations. If the designers require additional soil parameters to complete the design of the foundation or pavement systems, and this information can be obtained from the soil data and laboratory tests performed within the scope of work included in our proposal for this project, UES will provide the additional recommendations requested as a supplement to this report.

The Geotechnical Engineer states that the findings, recommendations, specifications or professional advice contained herein have been presented after being prepared in a manner consistent with that level of care and skill ordinarily exercised by reputable members of the Geotechnical Engineer's profession practicing contemporaneously under similar conditions in the locality of the project. UES operates in general accordance with "*Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction"* (ASTM D3740). No other representations are expressed or implied, and no warranty or guarantee is included or intended.

This study was conducted for Calallen ISD for the specific application of the proposed Wood River Elementary Walking Track project to be located on the campus of Wood River Elementary School at 15118 Dry Creek Drive in Corpus Christi, Texas.

SITE DESCRIPTION

The site of the planned improvements project is located on the campus of Wood River Elementary School located at 15118 Dry Creek Drive, in Corpus Christi, Texas. The campus consists of the main school buildings at the north end of the campus and an open ground area at the south end, the two which are divided by a roadway. The open ground area is mostly grass covered and has an existing asphaltic walking path. The site is flat and level, and the existing ground surface provided adequate support for our drill rig and support vehicle to access the boring locations with no problems.

FIELD EXPLORATION

Scope

The field exploration, to evaluate the engineering characteristics of the subsurface materials, included reconnaissance of the project site, performing the boring operations and obtaining relatively undisturbed Shelby tube samples. During the sample recovery operations the soils encountered were classified and recorded on the boring logs in accordance with the "*Standard Guide for Field Logging of Subsurface Exploration of Soil and Rock*" (ASTM D5434).

Two (2) borings were performed at the site for the purpose of providing geotechnical information. The table below provides the boring identification, boring depths, and approximate Global Positioning System (GPS) coordinates at the boring locations.

Summary of Boring Information		
Boring	**Depth (ft)**	**Approximate GPS Coordinates**
B-1	5	N 27.86101 ° W 97.66116 °
B-2	10	N 27.86073 ° W 97.66037 °

Approximate GPS coordinates were obtained at the boring locations using a recreational grade device and are provided in this report and on the boring logs. The client determined the number and depths of the borings and UES performed the drilling and logging operations.

Upon completion of the drilling operations and obtaining the groundwater observations, the boreholes were backfilled with excavated soil. A Boring Location Plan is provided in the Appendix.

The borings performed for this project were used to determine the classification and strengths of the subgrade soils. The information provided on the boring logs includes the boring location, depths, soil classifications, soil strengths, and laboratory test results. The boring logs are included in the Appendix.

Drilling and Sampling Procedures

The test borings were performed using a drilling rig equipped with a rotary head turning solid stem augers to advance the boreholes. Relatively undisturbed soil samples were obtained using thin-wall tube sampling procedures in general accordance with "*Thin-Walled Tube Sampling of Soils"*, (ASTM D1587). The samples obtained by this procedure were extruded by a hydraulic ram in the field.

The samples were visual-manual classified with respect to (ASTM D2488), placed in plastic bags, marked according to boring number, depths and any other pertinent field data, stored in special containers and delivered to the laboratory for testing.

Field Observations

Water Level Observations – Water level observations were obtained during and after the test boring operations. Water level observations are noted on the boring logs provided in the Appendix. In relatively pervious soils, such as sandy soils, the indicated depths are usually reliable groundwater levels. In relatively impervious soils, such as clayey soils, a suitable estimate of the groundwater depth may not be possible, even after several days of observation. Seasonal variations, temperature, land-use, proximity to water bodies and recent rainfall conditions may influence the depth to the groundwater. The amount of water in open boreholes largely depends on the permeability of the soils encountered at the boring locations.

Ground Surface Elevations – The ground surface elevations at the boring locations were not provided. Therefore, depths referred to in this report are from the ground surface at the boring locations during the time of our field investigation.

LABORATORY TESTING PROGRAM

In addition to the field investigation, a laboratory testing program was conducted to determine additional pertinent engineering characteristics of the subsurface materials necessary in analyzing the behavior of the subgrade soils for the proposed project.

The laboratory testing program included supplementary visual-manual classification (ASTM D2488) and water content tests (ASTM D2216) on the samples. In addition, selected samples were subjected to Atterberg limits tests (ASTM D4318) and percent material finer than the #200 sieve tests (ASTM D1140) and then classified with respect to the Unified Soil Classification System (ASTM D2487). The shear strengths of all the cohesive soil samples obtained by Shelby tube sampling were estimated using a hand penetrometer.

The laboratory testing program was conducted in general accordance with applicable ASTM Specifications. The results of these tests are to be found on the accompanying boring logs provided in the Appendix.

SUBSURFACE CONDITIONS

General

The types of bearing materials encountered in the test borings have been visually classified and are described in detail on the boring logs. The results of water level observations and laboratory tests are also presented on the boring logs. Representative samples of the soils were placed in sealed polyethylene bags and are now stored in the laboratory for further analysis, if desired. Unless notified to the contrary, the samples will be disposed of three months after issuance of this report.

The stratification of the soil, as shown on the boring logs, represents the soil conditions at the actual boring locations. Variations may occur and should be expected between and beyond the boring locations. Lines of demarcation represent the approximate boundary between different soil types, but the transition may be gradual, or not clearly defined. It should be noted that, whereas the test borings were drilled and sampled by experienced drillers, it is sometimes difficult to record changes in stratification within narrow limits. In the absence of foreign substances, it is also difficult to distinguish between discolored soils and clean soil fill.

Soil Conditions

The generalized soil conditions encountered in the area of the planned new construction at the project site have been summarized and soil properties including soil classification, strength and plasticity are provided in the following tables.

Soil Profile Table 1 (Borings B-1 and B-2)								
D	**Description**	**LL**	**PI**	**-#200**	**ϕ**	**γ_e**	**C**	**P**
0-5.5	Sandy Lean **CLAY**	36-43	21-30	51-56	0	120	2,800	4.5+
5.5-10	**CLAYEY** Sand	24	10	40	0	120	2,200	3.0-4.0

Note: Boring B-1 terminated at a depth of 5 feet.

Where:

D = Depth in feet below existing grade
PI = Plasticity index
ϕ = Angle of Internal Friction, deg. (undrained)
-#200 = Material passing #200 sieve, %
LL = Liquid limit, %
C = Soil Cohesion, psf (undrained)
γ_e = Effective soil unit weight, pcf
P = Hand penetrometer value range, tsf

Detailed descriptions of the soils encountered at the boring locations are provided on the boring logs included in the Appendix.

Groundwater Observations

Groundwater was not encountered during our drilling and sampling operations. It is important to note that water levels in open boreholes may require several hours to several days to stabilize depending on the permeability of the soils and groundwater levels at this site may be subject to seasonal conditions, recent rainfall, drought or temperature effects.

GEOTECHNICAL DISCUSSION

Project Description

Based on information provided to Rock Engineering, the project will consist of constructing a concrete walking track. Existing topographic information, loading conditions, or grading plans have not been provided. However, we anticipate that the finish floor elevation (FFE) of the proposed new concrete pavement to be 6 inches to 1 foot above the existing site grades. If additional information becomes available it should be forwarded to UES, so we can adjust our recommendations, if needed.

Potential Vertical Rise (PVR) Discussion

The laboratory test results indicate that the subsoils in the active zone at this site are high in plasticity. **The calculated total potential vertical rise (PVR) for slab-on-grade construction at this site is estimated to be on the order of 1½ to 2 inches.** It should be noted that this estimated value is based on the assumption that the plasticity indices of the soils present in the upper 10 fete of the subsurface profile remain consistent through the remainder of the active zone which is estimated to extend to a depth of 15 feet. This PVR value was calculated using the Texas Department of Transportation Method TEX-124E and took into account the average depth of active zone and the Atterberg limits test result of the soils encountered within the active zone.

It is important to note that the PVR value provided herein was calculated using the Texas Department of Transportation Method TEX-124E and represents the vertical rise that can be experienced by subsoils subjected to increases in soil moisture content resulting from capillary or surface water.

Conditions that allow the soils to become saturated or significantly exceed typical moisture variations resulting from environmental conditions or exceed the dry and wet boundary conditions established by the TEX-124E method, such as poor drainage and/or broken utilities may result in 2 to 3 times or more the magnitude of moisture related soil movements than estimated by the PVR provided herein. Differential vertical movements may occur over a distance equal to the depth of the active zone and can potentially be equal to the expected total movements.

Typically undercutting and replacing the expansive soils is performed to reduce the PVR to an acceptable value for grade supported structures, whereas, stabilization of expansive subgrade soils is performed below pavements and non-movement sensitive flatwork.

PAVEMENT CONSIDERATIONS

In designing the proposed walking track, the existing subgrade conditions must be considered together with the expected use and loading conditions. The conditions that influence pavement design can be summarized as follows:

- Bearing values of the subgrade. These can be represented by a CBR and a Modulus of Subgrade Reaction (K), for flexible and rigid pavements, respectively.
- Expected traffic use, in terms of the number and frequency of vehicles and their range of axle loads.
- Probable increase in vehicular use over the life of the pavement.
- The availability of suitable materials to be used in the construction of the pavement and their relative costs.

Specific laboratory testing to define the subgrade strength (i.e. CBR and K value) has not been performed for this analysis. Based upon local experience, the estimated CBR and K values for the controlling clay soils encountered at the planned parking lot area are 3 and 100 pci, respectively.

Since anticipated usage conditions have not been provided, it is only possible to provide non-engineered pavement sections suitable for light-duty service based on pavement sections that have provided adequate serviceability for similar type facilities and on similar soils.

Allowances for proper drainage is most important for performance of pavements. Ruts, birdbaths, and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying subgrade soils.

Rigid Pavement Recommendations

The use of concrete for paving of walking trails has become more prevalent in recent years due to the long-term maintenance cost benefits of concrete pavement compared to asphaltic pavements. The recommended light-duty pavement section is provided in the following table. Light-duty rigid concrete pavements are recommended for pedestrian trails that will be exposed to occasional maintenance vehicles. If a heavier duty pavement is required, our office should be contacted to reevaluate our recommendations.

Rigid Pavement	Light-Duty	
	Option 1	Option 2
Reinforced Concrete	5 inches	5 inches
Lime Stabilized Subgrade (3.5%)	8 inches	--
Select Fill	--	12 inches

Concrete pavement should be properly reinforced and jointed, as per ACI, and should have a minimum 28 day compressive strength of 4,000 psi. Expansion joints should be sealed with an appropriate sealant so that moisture infiltration into the subgrade soils and resultant concrete deterioration at the joints is minimized. The joints should be thoroughly cleaned, and sealant should be installed without overfilling before pavement is opened to traffic.

Allowances for proper drainage and proper material selection of base materials are most important for performance of pavements. Ruts, birdbaths and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying base materials and subgrade soils.

Pavement Subgrade Preparation

In areas where the pavements will be constructed, after all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade.

For Lime Treatment operations, upon completion of proof rolling, the lime stabilization operations shall be performed in accordance with TxDOT Item 260, "Lime Treatment for Materials Used As Subgrade (Road Mixed)". Based on the results of the Atterberg limits testing for the subgrade soils and associated curves provided in TxDOT Test Method 121-E, UES recommends that the lime be mixed at the rate of **3.5 percent**, based on the maximum dry unit weight of the raw subgrade soils as determined by the standard Proctor test (ASTM D698). The lime stabilized soils should be compacted to a minimum density of 98 percent of the maximum dry density, as determined by a standard Proctor test (ASTM D698), and at or above the optimum moisture content.

Routine Maintenance of Rigid Pavement Systems

The pavement section provided in this report is based on pavement sections constructed on similar subgrade soils and for facilities similar to those planned for construction at this site. The pavement will require routine maintenance such as crack sealing and seal coats for flexible pavements and joint maintenance for rigid pavement sections to achieve a desirable life of pavement.

Without proper maintenance, moisture infiltration into the base materials and/or subgrade will result in rapid deterioration of the pavement system. UES recommends that the owner protect their investment by incorporating an aggressive maintenance program.

SITE IMPROVEMENT METHODS

Concrete Flatwork Construction Considerations

Provisions in the site development should be made in order to maintain relatively uniform moisture contents of the supporting soils. A number of measures may be used to attain a reduction in subsoil moisture content variations. Some of these measures are outlined below:

- During construction, positive drainage schemes should be implemented to prevent ponding of water on the subgrade.

- Positive drainage should be maintained around the paved surfaces, transmitting water away from the perimeter and site flatwork. In addition, positive grades sloping away from the site flatwork should be designed and implemented.

- We recommend that an effective site drainage plan be devised by others prior to commencement of construction to provide positive drainage away from the site improvements and off the site, both during and after construction.

- Vegetation placed in landscape beds that are adjacent to the site flatwork should be limited to plants and shrubs that will not exceed a mature height of 3 feet. Large bushes and trees should be planted away from the foundation and flatwork at a distance that will exceed their full mature height and canopy width.

- Individual concrete panels of site flatwork should be dowelled together to minimize trip hazards as a result of differential movements within the flatwork.

- Site flatwork should be designed to drain quickly with a minimum positive slope of 1 percent.

All project features beyond the scope of those discussed above should be planned and designed similarly to attain a region of relatively uniform moisture content within the pavement and flatwork areas. Poor drainage schemes are generally the primary cause of pavement and flatwork problems in South Texas.

CONSTRUCTION CONSIDERATIONS

Site Preparation

Site clearing and grubbing operations should be performed at the site to remove organics, roots, rubble, deleterious matter or otherwise unsuitable soil or materials to a minimum depth of 6 inches, or deeper if needed for their complete removal. Deeper excavations may be needed to completely remove tree roots. This excavation should extend laterally outside the footprint of the pavement and systems of the project, for a minimum distance of 2 feet.

After all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade. If the **"Select Fill"** pavement option is utilized, the upper 1 foot of exposed subgrade soils shall be moisture conditioned and recompacted to a minimum density of 95 percent of the maximum dry density as determined by the standard Proctor test (ASTM D698) and the moisture content shall be maintained at or above the optimum moisture content. If any soft areas are identified, the soils should be removed and recompacted in place.

Earthwork and Foundation Acceptance

Exposure to the environment may weaken the soils at the pavement bearing level if excavations remain open for long periods of time. Therefore, it is recommended that the pavement excavations be extended to final subgrade elevations and that the pavements be constructed as soon as possible to minimize potential damage to the bearing soils.

The pavement excavations should be free of loose soil, ponded water or debris, and should be observed prior to concreting by the Geotechnical Engineer, or his designated representative.

Concrete and flatwork constituents should not be placed on soils that have been disturbed by rainfall or seepage. If the subgrade soils are softened by surface water intrusion, or by desiccation, the unsuitable soils must be removed and be replaced with properly compacted soils or base material as directed by the Geotechnical Engineer.

The Geotechnical Engineer or his designated representative should monitor subgrade preparation. As a guideline, density tests should be performed on the exposed subgrade soils and each subsequent lift of compacted select fill soils at a rate of one test per 2,000 square feet or a minimum of three in-place nuclear tests per testing interval, whichever is greater. Any areas not meeting the required compaction should be recompacted and retested until compliance is met.

Select Fill

Imported select fill material used at this site should be homogenous, free from organics and other deleterious materials and should have a maximum liquid limit of 40 percent and a plasticity index (PI) between 7 and 18. The select fill soils shall have a minimum of 35 percent passing the #200 sieve and no soil particles exceeding 1½ inches will be permitted. The select fill should be placed in no greater than 8 inch thick loose lifts and then compacted to a minimum density of 98 percent of the maximum dry density, as determined by the standard Proctor test (ASTM D698), and at, or above, the optimum moisture content.

OSHA Soil Type Classification

The table below provides a summary of the OSHA Soil Type Classification based on the soils encountered at boring locations.

Soil Type Classification Table		
Depth (feet)	**Description**	**OSHA Soil Type Classification**
0-10	Cohesive Soil Above Water Table (average undrained shear strength greater than 500 psf)	Type B

It should be noted that the contractor's "competent person" shall make the final determination of the OSHA Soil Type during excavation of the soils at the jobsite. If OSHA Soil Type Classification is required greater than 10 feet below the existing grade, Please contact UES for additional information.

If groundwater is encountered during construction, all soils below the groundwater elevation or from which water freely seeps should be downgraded to Type C soils. Slope protection or slope benching is required for excavations greater than 5 feet for worker protection and trenching greater than 20 feet needs to be designed and sealed by a professional engineer registered in the State of Texas. The maximum allowable slopes during construction for soil OSHA soil types are provided below.

Guidelines for Maximum Allowable Slopes	
Soil or Rock Type	**Max. Allow. Slopes for Excavations < Than 20' Deep**
Type B	1 Horizontal : 1 Vertical
Type C	1½ Horizontal : 1 Vertical

Guidelines for maximum allowable slopes were obtained from OSHA documents, but do not take into account any recent revisions or the stability of long-term unprotected slopes. Long term unprotected slopes will likely require much flatter slopes. The guidelines presented herein for slopes do not imply UES is taking responsibility for construction site safety; this responsibility falls entirely upon the contractor and his responsible person. The contractor shall comply with all rules, ordinances and other requirements to comply with safe construction practices.

GENERAL COMMENTS

If significant changes are made in the character or location of the Wood River Elementary Walking Track project, a consultation should be arranged to review any changes with respect to the prevailing soil conditions. At that time, it may be necessary to submit supplementary recommendations.

It is recommended that the services of UES be engaged to test and evaluate the soils in the excavations prior to concreting in order to verify that the bearing soils are consistent with those encountered in the boring. UES cannot accept any responsibility for any conditions that deviate from those described in this report, nor for the performance of the site improvements if not engaged to also provide construction observation and testing for this project. If it is required for UES to accept any liability, then UES must review and agree with the plans and perform such observation during construction as we recommend.

All dewatering, sheeting, shoring, and bracing of trenches, pits and excavations should be made the responsibility of the contractor and should comply with all current and applicable local, state and federal safety codes, regulations and practices, including the Occupational Safety and Health Administration.

APPENDIX

SITE VICINITY MAP

June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124174

WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

BORING LOCATION PLAN

June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124174

WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas

LOG OF BORING B-1

Rock Engineering and Testing Labratory, LLC.
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Wood River Elementary Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124174
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling
Dry and caved upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	ST S-1		P= 4.5+	16	36	15	21			56	**SANDY LEAN CLAY** (CL), with calcareous deposits, dark gray, moist, hard.
	2											
	3											
	4	ST S-2		P= 4.5+	14	42	12	30			51	Same as above, gray and brown. (CL)
	5											Boring terminated at 5 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilling operations performed by Rock Engineering at GPS coordinates
N 27.86101 W 97.66116

LOG OF BORING B-2

Rock Engineering and Testing Labratory, LLC.
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Wood River Elementary Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124174
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling
Dry and caved upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	ST S-1		P= 4.5+	13	43	14	29			51	**SANDY LEAN CLAY** (CL), gray and brown, moist, hard.
	2											
	3											
	4	ST S-2		P= 4.5+	13							Same as above, brown.
	5											
	6	ST S-3		P= 4.0	11	24	14	10			40	**CLAYEY SAND** (SC), brown, moist, very stiff.
	7											
	8											
	9	ST S-4		P= 3.0	7							Same as above, dry.
	10											Boring terminated at 10 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilling operations performed by Rock Engineering at GPS coordinates
N 27.86073 W 97.66037

LOG_OF_BORING G124174 WOODRIVER.GPJ ROCK_ETL.GDT 6/18/24

UES
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

KEY TO SOIL CLASSIFICATION AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well Graded Gravels or Gravel-Sand mixtures, little or no fines
		GP	Poorly Graded Gravels or Gravel-Sand mixtures, little or no fines
		GM	Silty Gravels, Gravel-Sand-Silt mixtures
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SAND AND SANDY SOILS	SW	Well Graded Sands or Gravelly Sands, little or no fines
		SP	Poorly Graded Sands or Gravelly Sands, little or no fines
		SM	Silty Sands, Sand-Silt Mixtures
		SC	Clayey Sands, Sand-Clay mixtures
	SILTS AND CLAYS LL < 50	ML	Inorganic Silts and very fine Sands, Rock Flour, Silty or Clayey fine Sands or Clayey Silts
		CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		OL	Organic Silts and Organic Silt-Clays of low plasticity
	SILTS AND CLAYS LL > 50	MH	Inorganic Silts, Micaceous or Diatomaceous fine Sandy or Silty soils, Elastic Silts
		CH	Inorganic Clays of high plasticity, Fat Clays
		OH	Organic Clays of medium to high plasticity, Organic Silts
NON USCS MATERIALS			Limestone
			Marl/Claystone
			Sandstone

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical

LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top

CRUMBLY - cohesive soils which break into small blocks or crumbs on drying

CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular

WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes

POORLY GRADED - predominantly of one grain size uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded)

SYMBOLS FOR TEST DATA

- Groundwater Level (Initial Reading)
- Groundwater Level (Final Reading)
- Shelby Tube Sample
- SPT Samples
- Auger Sample
- Rock Core
- Texas Cone Penetrometer
- Grab Sample

TERMS DESCRIBING CONSISTENCY OF SOIL

COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	< 2	< 0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Medium	10 - 30	Firm	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

Field Classification for "Consistency" of Fine Grained Soils is determined with a 0.25" diameter penetrometer

SECTION 03 11 13.11
CONCRETE FORMS

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the installation and removal of Concrete Forms as required to complete the project.

1.02 References *The latest edition of the referenced item below shall be used.*

A. American Concrete Institute
B. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 420, Concrete Structures

1.03 Submittals

A. Forming plans shall be submitted to the Owner for review as specified.

PART 2 - PRODUCTS

2.01 General

A. Forms may be of either wood or metal, except where otherwise specified or directed by the Owner.
B. Forms shall be straight, free from warp, and of a depth equal to the thickness of the finished work.
C. Forms shall be practically mortar-tight, rigidly braced and strong enough to prevent bulging between supports and maintained to the proper line and grade during concrete placement.

2.02 Form Design and Form Plans

A. Forms shall be designed for the pressure exerted by a liquid weighing 150 pounds per cubic foot.
    1. The rate of placing the concrete shall be taken into consideration in determining the depth of the equivalent liquid.
B. For job-fabricated forms, an additional live load of fifty pounds per square foot (50 psf) shall be allowed on horizontal surfaces.
C. Commercially produced structural units used in formwork shall not exceed the manufacturer's maximum allowable working load for moment, shear or end reaction.
D. The maximum working load shall include a live load of thirty-five pounds per square foot (35 psf) of horizontal form surface and sufficient details and data shall be submitted for use in checking formwork details for approval.
E. Forming plans shall be submitted to the Owner for approval when specified.

2.03 Wood Forms

A. Lumber
    1. Lumber for forms shall be properly seasoned, of good quality, and free from imperfections which would affect its strength or impair the finished surface of the concrete.
    2. The lumber used for facing or sheathing shall be finished on at least one (1) side and two (2) edges and shall be sized to uniform thickness.
B. Plywood
    1. Forms may be constructed of plywood not less than one-half inch (1/2") in thickness, with no form lining required.
    2. The grain of the face plies on plywood forms shall be placed parallel to the span between the supporting studs or joists.
    3. Plywood used for forming surfaces which remain exposed shall be equal to that specified as B-B Plyform Class I or Class II.
C. Reuse of Lumber or Plywood Forms
    1. Forms or form lumbers to be reused shall be maintained clean and in good condition.
    2. Any lumber or plywood which is split, warped, bulged, marred or has defects that will produce inferior work shall not be used and, if condemned, shall be promptly removed from the work.
D. Liner
    1. Form lining will be required for all formed surfaces, except for the inside of culvert barrels, inlets and manholes; surfaces that are subsequently covered by backfill material or are completely enclosed; and, any surface formed by a single finished board.
    2. Lining will not be required when plywood forms are used.

3. Form lining shall be of an approved type such as Masonite or plywood.
4. Thin membrane sheeting, such as polyethylene sheets, shall not be used for form lining.

2.04 Metal Forms

A. The foregoing requirements for timber forms as regard to design, mortar-tightness, filleted corners, beveled projections, bracing, alignment, removal, reuse and wetting shall also apply to metal forms, except that these will not require lining, unless specifically noted on the plans.
B. The thickness of form metal shall be as required to maintain the true shape without warping or bulging.
C. All bolt and rivet heads on the facing sides shall be countersunk.
D. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete.
E. Metal forms which do not present a smooth surface or line up properly shall not be used.
F. Metal shall be kept free from rust, grease or other foreign materials.

2.05 Molding

A. Molding specified for chamfer strips or other uses shall be made of materials of a grade that will not split when nailed and which can be maintained to a true line without warping.
B. Wood molding shall be mill cut and dressed on all faces.
C. Unless otherwise provided, forms shall be filleted at all sharp corners and edges with triangular chamfer strips measuring three-fourths inch (3/4") on the sides.

2.06 Metal Form Ties

A. Metal form ties of an approved type or a satisfactory substitute shall be used to hold forms in place and shall be of a type that permits ease of removal of the metal as hereinafter specified.
B. Devices holding metal ties in place shall be capable of developing the strength of the tie and adjustable to allow for proper alignment.

2.07 Form Removal Coating

A. Shall be oil or other bond breaking coating of such composition that it will not discolor or otherwise injuriously affect the concrete surface, which is approved by the Owner.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Supports

A. Studs and joists shall be spaced so that the facing form material remains in true alignment under the imposed loads.
B. Shall be securely staked to line and grade and maintained in a true position during the depositing of concrete.

3.03 Form Walls

A. Walls shall be spaced close enough to hold forms securely to the designated lines and scabbed at least four-feet (4') on each side of joints to provide continuity.
B. A row of walls shall be placed near the bottom of each placement.
C. Adequate clean-out openings shall be proved for narrow walls and other locations where access to the bottom of the forms is not readily attainable.
D. Facing material shall be placed with parallel and square joints and securely fastened to supporting studs.
E. Forms for surfaces receiving only an ordinary finish and exposed to view shall be placed with the form panels symmetrical, i.e., long dimensions set in the same direction.
F. Forms for round columns exposed to view shall be of steel, except that other materials will be allowed with written permission of the Owner.
G. Horizontal joints shall be continuous.
H. All forms shall be constructed to permit their removal without marring or damaging the concrete.
   1. The forms may be given a slight draft to permit ease of removal.
I. Offset at form joints shall not exceed one-sixteenth inch (1/16").
J. Forms shall conform to the specified radius when placed on curves.

K. All forms and footing areas shall be cleaned of any extraneous matter before placing concrete.
L. Permission to place concrete will not be given until all such formwork is completed to the satisfaction of the Owner.
M. If, at any stage of the work, the forms show signs of bulging or sagging, the portion of the concrete causing such condition shall be removed immediately, if necessary, and the forms shall be reset and securely braced against further movement.

3.04 Spreaders

A. Metal and wooden spreaders which are separate from the forms shall be removed entirely as the concrete is being placed.

3.05 Metal Appliances

A. All metal appliances used inside of forms for alignment purposes shall be removed to a depth of at least one-half inch (1/2") from the concrete surface.
B. They shall be made so the metal may be removed without undue chipping or spalling, and when removed, shall leave a smooth opening in the concrete surface.
C. Burning off of rods, bolts or ties will not be permitted.
D. Any wire ties used shall be cut back at least one-half inch (1/2") from the face of the concrete.

3.06 Railing and Ornamental Work

A. Forms for railing and ornamental work shall be constructed to standards equivalent to first-class millwork.
B. All moldings, panel work and bevel strips shall be straight and true with nearly mitered joints designed so the finished work is true, sharp and clean cut.

3.07 Form Removal Coating

A. Prior to placing concrete reinforcement, the facing of all forms shall be treated with oil or other bond breaking coating of such composition that it will not discolor or otherwise injuriously affect the concrete surface.

3.08 Removal of Forms

A. Except as herein provided, forms for vertical surfaces may be removed when the concrete has aged not less than one (1) day when Type I and Type II cement is used, and not less than one-half (1/2) day when Type III cement is used, provided it can be done without damage to the concrete.
B. Forms for inside curb faces may be removed in approximately three (3) hours provided it can be done without damage to the curb.
C. Weight-supporting forms shall be removed once the concrete has attained a compressive strength of 2,500 psi or as directed by the Owner.

SECTION 03 21 11

REINFORCING STEEL

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the furnishing and placement of Reinforcing Steel as required to complete the project.

1.02 Related Sections

A. 03 31 11 CONCRETE STRUCTURES

1.03 References *The latest edition of the referenced item below shall be used.*

A. **American Concrete Institute (ACI) 318, Building Code Requirements for Structural Concrete**
B. ASTM A36 / A36M – Standard Specification for Carbon Structural Steel
C. ASTM A82 / A82M – Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
D. ASTM A123 / A123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products
E. ASTM A185 / A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
F. ASTM A496 / A496M – Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement
G. ASTM A615 / A615M – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
H. ASTM A675 / A675M – Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
I. ASTM A706 / A706M – Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
J. ASTM A775 / A775M – Standard Specification for Epoxy-Coated Steel Reinforcing Bars
K. ASTM A884 / A884M – Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
L. ASTM A934 / A934M – Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
M. ASTM A996 / A996M – Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
N. ASTM D3963 – Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars
O. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 440, Reinforcing Steel
P. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS-7320, "Qualification Procedure for Reinforcing Steel Mills"
Q. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS-7330, "Qualification Procedure for Reinforcing Steel Epoxy Coating Applicators"
R. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS-4510, "Mechanical Couplers"
S. Concrete Reinforcing Steel Institute (CRSI)
T. American Welding Society AWS D1.4/D1.4M, *"Structural Welding Code - Reinforcing Steel"*

1.04 Submittals

A. Product Information
    1. Clearly indicate within submittal that the product is in compliance with this and related Section(s).
B. Mill approval letter certified by mill.

PART 2 - PRODUCTS

2.01 General

A. The requirements of the Drawings, Owner, ASTM Designation, and / or ACI requirements shall govern all products.
B. In cases where the provisions of this specification are in conflict with the provisions of the ASTM Designation and / or ACI requirements to which reference is made, the provisions of this specification shall govern.
C. All bars shall be marked in accordance with ASTM A615 or ASTM A706.
D. Furnish copies of a written certification that the reinforcing steel meets the requirements of this Section.

2.02 Approved Mills

A. Reinforcement shall be produced by mills that are approved by the Texas Department of Transportation (TxDOT) in accordance with TxDOT DMS-7320.
B. Mill certification shall be submitted with each delivery prior to incorporation of the material into the Project.

2.03 Deformed Bar

A. Unless otherwise designated on the Drawings, all bar reinforcement shall be deformed.
B. Reinforcing Steel must conform to one of the following:
   1. ASTM A615, Grades 40 or 60,
   2. ASTM A996, Type A, Grades 40 or 60,
   3. ASTM A996, Type R, Grade 60, permitted in concrete pavement only (Furnish ASTM A996, Type R bars as straight bars only and do not bend them. Bend tests are not required),
   4. ASTM A706
   5. ACI 318
C. Large diameter new billet steel (Nos. 14 and 18), Grade 75, and will be permitted for straight bars only.
D. The nominal size and area and the theoretical weight of reinforcing steel bars covered by this specification is shown in Table 1:

Table 1
Size, Area, and Weight of Reinforcing Steel Bars

Bar Size Number	Nominal Diameter (inch)	Nominal Area (square inch)	Weight Per Linear Foot
2	0.250	0.05	0.167
3	0.375	0.11	0.376
4	0.500	0.20	0.668
5	0.625	0.31	1.043
6	0.750	0.44	1.502
7	0.875	0.60	2.044
8	1.000	0.79	2.670
9	1.128	1.00	3.400
10	1.270	1.27	4.303
11	1.410	1.56	5.313
14	1.693	2.25	7.600
18	2.257	4.00	13.60

2.04 Smooth Round Bars and Dowels

A. Reinforcing Steel must conform to one of the following:
   1. ASTM A615, Grades 40 or 60,
   2. ASTM A996, Type A, Grades 40 or 60,
   3. ASTM A996, Type R, Grade 60, permitted in concrete pavement only (Furnish ASTM A996, Type R bars as straight bars only and do not bend them. Bend tests are not required),
   4. ASTM A706
   5. ACI 318
B. Large diameter new billet steel (Nos. 14 and 18), Grade 75, and will be permitted for straight bars only.
C. Smooth bars larger than No. 3, provide steel conforming to ASTM A615 or meet the physical requirements of ASTM A36 and ACI 318.
D. Concrete pavement
   1. Smooth bars and Dowels must have a minimum yield strength of 60 ksi and meet ASTM A615 and ACI 318.

2.05 Spiral Reinforcement

A. Spiral reinforcement shall be smooth (not deformed) bars or wire of the minimum diameter shown on the Drawings.
B. Bars
   1. Bars must comply with ASTM A615, Grade 40; ASTM A996, Type A, Grade 40; or ASTM A675, Grade 80, meeting the dimensional tolerances of ASTM A615, and ACI 318.

C. Wire
   1. Wire shall be cold-drawn from rods that have been hot-rolled from billets and shall comply with ASTM A185 and ACI 318.
   2. Smooth wire must comply with ASTM A82.
   3. Deformed wire must comply with ASTM A496.

2.06 Weldable Reinforcing Steel

A. Reinforcement shall comply with ASTM A706 or have a carbon equivalent (C.E.) of at most 0.55%.
B. Furnish copies of the chemical analysis showing the percentages of carbon, manganese, phosphorus and sulfur and written certification that the reinforcing steel meets the requirements of this Section.

2.07 Welded Wire Fabric

A. Provide in rolls or sheets complying with ASTM A185.

2.08 Epoxy Coating

1. Required when and as shown on the Drawings, or as directed by the Owner.
2. The epoxy shall be applied by an approved applicator in accordance with TxDOT DMS-7330, "Qualification Procedure for Reinforcing Steel Epoxy Coating Applicators".
3. Reinforcement is to be coated in accordance with Table 2.

Table 2
Epoxy Coating Requirements for Reinforcing Steel

Material	Specification
Bar	ASTM A775 or A934
Wire or Fabric	ASTM A884 Class A or B
Mechanical Couplers	As shown on Drawings
Hardware	As shown on Drawings

4. Epoxy coating material and coating repair material shall comply with TxDOT DMS-8130, "Epoxy Powder Coating for Reinforcing Steel".
5. Epoxy-Coated Reinforcement will be sampled and tested in accordance with TxDOT Tex-739-I.
6. Maintain identification of all reinforcing throughout the coating and fabrication and until delivery to the project.
7. Furnish copies of a written certification that the reinforcing steel meets the requirements of this Section and copies of the manufacturers control tests.

2.09 Mechanical Couplers

A. When mechanical splices are shown in the Drawings and allowed by the Owner, the following types shall be used:
   1. Sleeve-filler,
   2. Sleeve-threaded,
   3. Sleeve-swaged, or
   4. Sleeve-wedge (not permitted on coated reinforcement).
B. Furnish only couplers that have been produced by a manufacturer that is approved in accordance with TxDOT DMS-4510, "Mechanical Couplers".
C. Couplers must be sampled and tested in accordance with DMS-4510.
D. Furnish copies of a written certification that the mechanical couplers meets the requirements of this Section.

2.10 Ties

A. Uncoated Reinforcement
   1. Ties shall be a minimum of 16 gauge of like material of the reinforcement
   2. Be in accordance with the Drawings and ACI 318.
B. Coated Reinforcement
   1. Ties shall be a minimum of 16 gauge 7 mil PVC coated
   2. Be in accordance with the Drawings and ACI 318
   3. Be approved by the Owner.

2.11 Spacers and Blocking

A. Galvanized Metal Spacers
   1. Be galvanized in conformance with ASTM A123.

2. Are to be approved for use by Owner.
3. Not allowed with epoxy-coated reinforcement.

B. Metal Spacers with Plastic Coated Tips
1. Are to be approved for use by Owner.

C. Stainless Steel Spacers
1. Shall be type 316 or as directed by Owner.
2. Are to be approved for use by Owner.

D. Plastic Spacers
1. For approval of plastic spacers on project, representative samples of the plastic shall show no visible indications of deterioration after immersion in a five percent (5%) solution of sodium hydroxide for 120 hours.
2. Must be used with epoxy-coated reinforcement.

E. Pre-cast Mortar or Concrete Blocks
1. Pre-cast mortar or concrete blocks to be used for holding steel in position adjacent to formed surfaces shall be cast in molds meeting the approval of the Owner and shall be cured by covering with wet burlap or cotton mats for a period of 72 hours.
2. The blocks shall be cast in the form of a frustum of a cone or pyramid with the smaller face placed against the forms.
3. A suitable tie wire shall be provided in each block, to be used for anchoring to the steel.
4. Except in unusual cases, and when specifically otherwise authorized by the Owner, the size of the surface to be placed adjacent to the forms shall not exceed two and one-half inches (2 1/2") square or the equivalent thereof in cases where circular or rectangular areas are provided.
5. Blocks shall be cast accurately to the thickness required, and the surface to be placed adjacent to the forms shall be a true plane free of surface imperfections.
6. Not allowed with epoxy-coated reinforcement.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
1. In the event that a requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Bending

A. The reinforcement shall be bent cold, true to the shapes indicated on the Drawings.

B. Bending shall preferably be done in the shop.
1. Field bending and method of, will need to be approved by the Owner.

C. Irregularities in bending shall be cause for rejection at no cost to the Owner.

D. Unless otherwise shown on the Drawings, the inside diameter of bar bends, in terms of the nominal bar diameter (d), shall be as shown in Table 3:

Table 3
Minimum Inside Diameter of Bends

Bend	Bar Size Number (inch)	Grade 40	Grade 60	Grade 75
Bends of 90 degree and greater in stirrups, ties and other secondary bars that enclose another bar in the bend.	#3, #4, #5	3d	4d	--
	#6, #7, #8	4d	6d	--

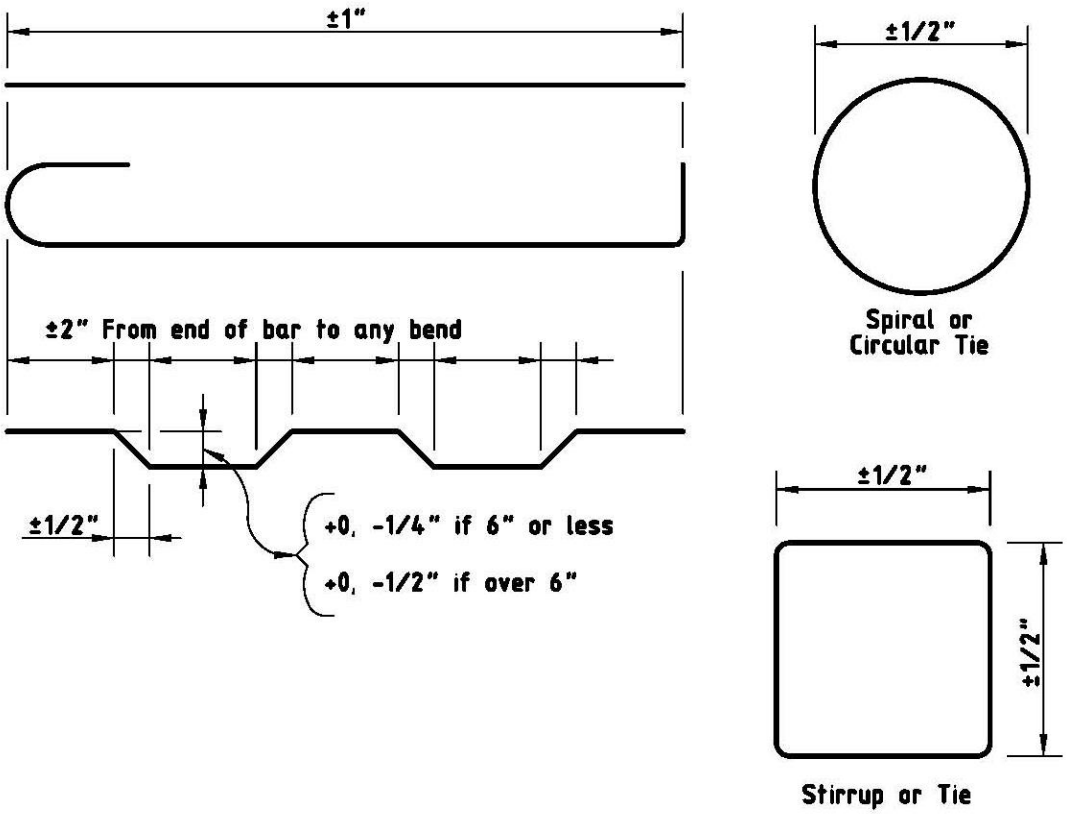
All bends in main bars and in secondary bars not covered above.	#3, #4, #5, #6, #7, #8	5d	6d	--
	#9, #10	5d	8d	--
	#11	5d	8d	8d
	#14, #18	10d	10d	--

E. Where bending of bar sizes No. 14 or No. 18 of Grades 40 and 60 is required, bend testing shall be performed on representative specimens as described for smaller bars in the applicable ASTM Specification.
   1. The required bend shall be 90 degrees around a pin having a diameter of ten (10) times the nominal diameter of the bar.

3.03 Tolerances

A. Fabricating tolerances for bars shall be as specified on the Drawings or as shown in Figure 1:

Figure 1
Fabrication Tolerances for Bars



3.04 Storage

A. All materials shall be stored above the surface of the ground upon platforms, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust.
B. Materials shall be free from injurious defects such as cracks and laminations.
C. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross-sectional area and tensile properties of a hand wire crushed specimen meets the physical requirements for size and grade of steel specified.

3.05 Splices

A. Bars
   1. No splicing of bars, except when provided on the Drawings or specified herein, will be permitted without written approval of the Owner.

2. Splices not provided for on the Drawings will be permitted, but not included for measurement, in Grade 40 bars only, sizes No. 8 and smaller, subject to the following:
    a. For bars exceeding forty-feet (40') in drawing length, the distance center to center of splices shall not be less than forty-feet (40') and no individual bar length shall be less than ten-feet (10').
    b. Splices will not be permitted in bars less than forty-feet (40') in drawing length.
    c. Splices which are not shown on the Drawings, but permitted hereby, shall be made in accordance with Table 4, or as directed by Owner:

Table 4
Minimum Lap Requirements

Bar Size Number (inches)	Uncoated Lap Length	Coated Lap Length
3	1'-6"	2'-6"
4	2'-0"	3'-0"
5	2'-6"	3'-6"
6	3'-0"	4'-0"
7	3'-6"	5'-6"
8	4'-6"	7'-0"
9	6'-0"	8'-6"
10	7'-6"	11'-0"
11	9'-0"	13'-6"

    d. Do not lap No. 14 or No. 18 bars
    e. The specified concrete cover shall be maintained at such splices and the bars placed in contact and securely tied together.
3. Splices will not be permitted in main reinforcement at points of maximum stress.
    a. When permitted in main bars, splices in adjacent bars will be staggered a minimum of two (2) splice lengths.

B. Welded Wire
1. Lap length shall be at least two (2) cross wires plus two inches (2") on each sheet or roll.
2. All intersections of wire shall be securely tied together.

C. Box Culvert Extensions
1. For box culvert extensions with less than one-foot (1') of fill, the existing longitudinal bars shall have a twenty (20) diameter lap with the new bars.
2. For extensions with more than one-foot (1') of fill, a minimum of one-foot (1') lap will be required.

D. Welding
1. Welding of reinforcing bars may be used only where shown on the Drawings and by a method approved by the Owner.
2. All welding operations, processes, equipment, materials, workmanship, and inspection shall conform to the requirements of the Drawings and AWS D1.4/D1.4M, *"Structural Welding Code - Reinforcing Steel"* of the American Welding Society.
3. All splices shall be of such dimension and character as to develop the full strength of bar being spliced.
4. End preparation for butt welding reinforcing bars, shall be done in the field.
5. Delivered bars shall be of sufficient length to permit this practice.
6. Welding of coated bars is not allowed unless the Owner approves of the method and location.

E. Mechanical Couplings
1. Install mechanical coupling in accordance with manufacturer's recommendations only where shown on the Drawings.
2. Do not repair damaged threads.
3. Mechanical coupling of coated bars is not allowed unless the Owner approves of the method and location.

3.06 Dowel Bars

1. Unless otherwise shown on the Drawings, dowel bars transferring tensile stresses, shall have a minimum embedment equal to the minimum lap requirements shown in Table 4.
2. Shear transfer dowels shall have a minimum embedment of twelve-inches (12").

3. Bars shall be greased or sleeved on one (1) end.

3.07 Uncoated Reinforcement Placement

1. Handling
   a. Provide systems for handling the reinforcement to prevent damage.
   b. Bundles shall be lifted with a strong back, spreader bar, multiple supports, platform bridge, or other means to prevent damage.
   c. Do not drag or drop reinforcement.
   d. Do not drag or drop other materials onto reinforcement.
2. Cutting
   a. Cutting of rods, bolt, and ties shall be done by saw or shear-cut only.
   b. Burning off of rods, bolts or ties will not be permitted.
3. Reinforcement
   a. Reinforcement shall be placed as near as possible in the position shown on the Drawings.
      1) Unless otherwise shown on the Drawings, dimensions shown for reinforcement are to the centers of the bars.
      2) In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from Drawing placement by more than one-twelfth (1/12) of the spacing between bars.
      3) In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from Drawing placement by more than one-quarter inch (1/4").
      4) Cover of concrete to the nearest surface of steel shall meet the above requirements but shall never be less than one inch (1") or as shown on the Drawings or as directed by the Owner.
   b. Vertical stirrups shall always pass around the main tensions members and be attached securely thereto.
   c. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil, or other foreign materials.
4. Support
   a. Reinforcement is to be supported and tied in such manner that a sufficiently rigid case of steel is provided.
   b. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars, or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measures are taken.
   c. Sufficient measurements shall be made during concrete placement to insure compliance with this specification and the Drawings.
   d. All metal appliances used inside of forms for alignment purposes shall be removed to a depth of at least one-half inch (1/2") from the concrete surface.
      1) They shall be made so the metal may be removed without undue chipping or spalling, and when removed, shall leave a smooth opening in the concrete surface.
5. Tying
   a. All reinforcing steel shall be tied at all intersections, except that where spacing is less than one foot (1') in each direction, alternate intersections only, need be tied.
   b. Any wire ties used shall be cut back at least one-half inch (1/2") from the face of the concrete.
6. Spacers and Blocking
   a. The reinforcing steel shall be spaced its required distance from the form surface by means of approved galvanized metal spacers, metal spacers with plastic coated tips, stainless steel spacers, plastic spacers, or approved pre-cast mortar or concrete blocks.
   b. Metal supports are not allowed to come into contact with the soil, subgrade, water, or other material which is corrosive to metal, unless approved by the Owner.

3.08 Coated Reinforcement Placement

1. Handling
   a. Provide systems for handling the reinforcement with padded contact areas to prevent damage to the coating.
   b. Bundles shall be lifted with a strong back, spreader bar, multiple supports, platform bridge, or other means to prevent damage to the coating.
   c. Do not drag or drop reinforcement.
   d. Do not drag or drop other materials onto reinforcement.

2. Cutting
    a. Cutting of rods, bolt, and ties shall be done by saw or shear-cut only when approved.
        1) The cut shall be coated in accordance with ASTM D3963 and as recommended by the manufacturer.
3. Reinforcement
    a. Reinforcement shall be placed as near as possible in the position shown on the Drawings.
        1) Unless otherwise shown on the Drawings, dimensions shown for reinforcement are to the centers of the bars.
        2) In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from Drawing placement by more than one-twelfth (1/12) of the spacing between bars.
        3) In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from Drawing placement by more than one-quarter inch (1/4").
        4) Cover of concrete to the nearest surface of steel shall meet the above requirements but shall never be less than one-inch (1") or as shown on the Drawings or as directed by the Owner.
    b. Vertical stirrups shall always pass around the main tensions members and be attached securely thereto.
    c. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil, or other foreign materials.
4. Support
    a. Reinforcement is to be supported and tied in such a manner that a sufficiently rigid case of steel is provided.
    b. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars, or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measures are taken.
    c. Sufficient measurements shall be made during concrete placement to insure compliance with this specification and the Drawings.
    d. All metal appliances used inside of forms for alignment purposes shall be removed to a depth of at least one-half inch (1/2") from the concrete surface.
        1) They shall be made so the metal may be removed without undue chipping or spalling, and when removed, shall leave a smooth opening in the concrete surface.
5. Tying
    a. All reinforcing steel shall be tied at all intersections, except that where spacing is less than one-foot (1') in each direction, alternate intersections only, need be tied.
    b. Any wire ties used shall be cut back at least one-half inch (1/2") from the face of the concrete.
6. Spacers and Blocking
    a. The reinforcing steel shall be spaced its required distance from the form surface by means of approved metal spacers with plastic coated tips, stainless steel spacers, or approved plastic spacers.
    b. Metal supports are not allowed to come into contact with the soil, subgrade, water, or other material which is corrosive to metal, unless approved by the Owner.
7. Coating Repair
    a. The coating repair shall be in accordance with ASTM D3963 and as recommended by the manufacturer.

3.09 Concrete Placement

1. No concrete shall be deposited until the Owner has inspected the placement of the reinforcing steel and given permission to proceed.
2. Before any concrete is placed, all debris shall be cleaned from the reinforcement.

SECTION 03 31 11

CONCRETE STRUCTURES

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the construction of structures involving the use of structural concrete as required to complete the project.

1.02 Related Sections

A. 03 11 13.11 CONCRETE FORMS
B. 03 21 11 REINFORCING STEEL
C. 03 35 11 CONCRETE FINISHING
D. 03 39 11 CONCRETE CURING

1.03 References *The latest edition of the referenced item below shall be used.*

A. ACI 211, "Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete"
B. ACI 302, "Recommended Practice for Concrete Floor and Slab Construction"
C. ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"
D. ACI 305, "Recommended Practice for Hot Weather Concreting"
E. ACI 306, "Recommended Practice for Cold Weather Concreting"
F. ACI 309, "Consolidation of Concrete"
G. ACI 315, "Recommended Practice for Detailing Reinforced Concrete Systems"
H. ACI 318, "Building Code Requirements for Structural Concrete"
I. ACI 614, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"
J. ASTM C 150 – Specification for Portland Cement
K. ASTM C 595 – Specification for Blended Hydraulic Cements
L. ASTM C 845 – Specification for Expansive Hydraulic Cement
M. ASTM C 1157 – Performance Specification for Hydraulic Cement
N. ASTM D 994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
O. ASTM D 1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
P. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 420, Concrete Structures
Q. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 421, Hydraulic Cement Concrete
R. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–4610, Fly Ash
S. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–4640, Chemical Admixtures for Concrete
T. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–6310, Joint Sealants and Fillers
U. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–6160, Waterstops, Nylon Reinforced Neoprene Sheet, and Elastomeric Pads
V. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–4650, Hydraulic Cement Concrete Curing Materials and Evaporation Retardants
W. Texas Department of Transportation (TxDOT) Test Procedure Tex-100-E
X. Texas Department of Transportation (TxDOT) Test Procedure Tex-203-F
Y. Texas Department of Transportation (TxDOT) Test Procedure Tex-401-A
Z. Texas Department of Transportation (TxDOT) Test Procedure Tex-410-A
AA. Texas Department of Transportation (TxDOT) Test Procedure Tex-411-A
BB. Texas Department of Transportation (TxDOT) Test Procedure Tex-413-A
CC. Texas Department of Transportation (TxDOT) Test Procedure Tex-472-A
DD. CRSI, "Reinforced Concrete – A Manual of Standard Practice"
EE. National Ready Mixed Concrete Association (NRMCA)

1.04 Submittals

A. Product Information
   1. Clearly indicate within submittal that the product is in compliance with this and related Section(s).
B. Complete concrete design data shall be submitted to the Owner for approval.
C. All test results shall be sent to the Owner upon completion of test.

1.05 Definitions

A. Retarding admixture - a material which, when added to a concrete mixture in the correct quantity, will retard the initial set of the concrete.

B. Water-reducing admixture – a material which, when added to a concrete mixture in the correct quantity, will reduce the quantity of mixing water required to produce concrete of a given consistency.

PART 2 - PRODUCTS

2.01 General

A. Any testing required for approval of use of a product is the responsibility of the Contractor.

2.02 Hydraulic Cement

A. Cement shall be in conformance with TxDOT DMS-4600.
   1. Any testing required for approval of use is the responsibility of the Contractor.

B. For cement strength requirements, either the tensile or the compressive test may be used.

C. Either Type I or II cement shall be used unless Type II is specified on the Drawings.
   1. Except when Type II is specified on the Drawings, Type III cement may be used when the anticipated air temperature for the succeeding twelve (12) hours will not exceed 60° F.
   2. Type III cement may be used in all precast prestressed concrete, except in piling when Type II cement is required for substructure concrete.
   3. Only one (1) brand of each type will be permitted on the entire project, unless otherwise authorized by the Owner.

D. Cement Delivery
   1. Bulk
      a. Cement may be delivered in bulk where adequate bin storage is provided.
      b. Information shall be provided in the bills of lading accompanying each shipment of name of the manufacturer and the type of cement.
   2. Bag
      a. Shall be delivered in bags marked plainly with the name of the manufacturer and the type of cement.
      b. Information shall be provided in the bills of lading accompanying each shipment of name of the manufacturer and the type of cement.
      c. Bags shall contain ninety-four (94) pounds net.
      d. All bags shall be in good condition at time of delivery.
   3. No caked cement will be accepted.

E. Storage
   1. All cement shall be stored in well-ventilated weatherproof buildings or approved bins, which will protect it from dampness or absorption of moisture.
   2. Storage facilities shall be ample, and each shipment of packaged cement shall be kept separated to provide easy access for identification and inspection.
   3. The Owner may permit small quantities of sacked cement to be stored in the open for a maximum of forty-eight (48) hours on a raised platform and under waterproof covering during periods of no precipitation.
   4. Cement remaining in storage for a prolonged period of time may be retested and rejected if it fails to conform to any of the requirements of these specifications.

2.03Aggregate

A. Supply aggregates that meet the definitions in TxDOT Tex-100-E.

B. Coarse Aggregate
   1. Coarse aggregate shall consist of durable particles of gravel, crushed blast furnace slag, crushed stone, or combinations thereof; free from frozen material or injurious amount of salt, alkali, vegetable matter, or other objectionable material either free or as an adherent coating; and its quality shall be reasonably uniform throughout.
   2. It shall not contain more than quarter-percent (0.25%) by weight of clay lumps, nor more than one-percent (1%) by weight of shale, nor more than five-percent (5%) of weight of laminated and/or friable particles when tested in accordance with TxDOT Tex-413-A.

3. It shall have a wear of not more than forty-percent (40%) when tested in accordance with TxDOT Tex-410-A.
4. Unless otherwise specified on the Drawings, coarse aggregate will be subjected to a five (5) cycle magnesium sulfate soundness of not more than eighteen-percent (18%) when tested in accordance with TxDOT Tex-411-A.
   a. Crushed recycled hydraulic cement concrete is not subject to the five (5) cycle soundness test.
5. When tested by approved methods, the coarse aggregate, including combinations of aggregates when used, shall conform to the grading requirements shown in Table 1.

Table 1
Coarse Aggregate Gradation

Aggregate Grade No.	Nominal Size	Percent Passing on Each Sieve								
		2 1/2	2	1 1/2	1	3/4	1/2	3/8	No. 4	No. 8
1	2"	100	80 to 100	50 to 85		20 to 40			0 to 5	
2 (467)*	1 1/2"		100	95 to 100		35 to 70		10 to 30	0 to 5	
3	1 1/2"		100	95 to 100		60 to 90	25 to 60		0 to 5	
4 (57)*	1"			100	95 to 100		25 to 60		0 to 10	0 to 5
5 (67)	3/4"				100	90 to 100		20 to 55	0 to 10	0 to 5
6 (7)	1/2"					100	90 to 100	40 to 70	0 to 15	0 to 5
7	3/8"						100	70 to 95	0 to 25	
8	3/8"						100	95 to 100	20 to 65	0 to 10

*Numbers in parenthesis indicate conformance with ASTM C33.

6. The Loss by Decantation as tested in accordance with TxDOT Tex-406-A and the allowable weight of clay lumps shall not exceed one-percent (1%), or the value shown on the Drawings, whichever is smaller.
   a. In the case of aggregates made primarily from crushing stone, if the material finer than the No. 200 sieve is established to be the dust of fracture and essentially free from clay or shale as established by TxDOT Tex-406-A, Part III, the limit may be increased to one and one-half percent (1.5%).
   b. When crushed limestone coarse aggregate is used in concrete pavements, the decant may not exceed one-percent (1%) but not more than three-percent (3%) if the material finer than the No. 200 sieve is determined to be at least sixty-seven percent (67%) calcium carbonate in accordance with TxDOT Tex-406-A, Part III.

C. Fine Aggregate
   1. Fine aggregate shall consist of clean, hard, durable and uncoated particles of natural or manufactured sand or a combination thereof, with or without a mineral filler.

2. It shall be free from frozen material or injurious amounts of salt, alkali, vegetable matter or other objectionable material and it shall not contain more than half-percent (0.5%) by weight of clay lumps in accordance with TxDOT Tex-413-A.
3. When subjected to the color test for organic impurities in accordance with TxDOT Tex-408-A, it shall not show a color darker than standard.
4. Unless otherwise shown on the Drawings, the acid insoluble residue of the fine aggregate shall be not less than sixty-percent (60%) by weight when tested in accordance with TxDOT standard laboratory test procedure Tex-612-J and as noted in TxDOT Item 421 for all concrete subject to direct traffic.
5. When tested in accordance with TxDOT Tex-401-A, the fine aggregate or combinations of aggregates, including mineral filler, shall conform to the grading requirements shown in Table 2.

Table 2
Fine Aggregate Gradation Chart

Aggregate Grade No.	Percent Retained on Each Sieve							
	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
1	0	0 to 5	0 to 20	15 to 50	35 to 75	65 to 90	90 to 100	97 to 100

NOTE 1: Where manufactured sand is used in lieu of natural sand, the percent retained on the No. 200 sieve shall be 94 to 100.

NOTE 2: Where the sand equivalent value is greater than 85, the retainage on the No. 50 sieve may be 70 to 94 percent.

6. Fine aggregate will be subjected to the Sand Equivalent Test (TxDOT Tex-203-F).
   a. The sand equivalent shall not be less than 80 nor less than the value shown on the Drawings, whichever is greater.
7. For all classes of concrete except K, the fineness modulus for fine aggregates shall be between 2.30 and 3.10 as determined by TxDOT Tex-402-A.
8. For all class K concrete, the fineness modulus for fine aggregates shall be between 2.60 and 2.80 as determined by TxDOT Tex-402-A.

D. Mineral Filler
1. Mineral filler shall consist of stone dust, clean crushed sand, or other approved inert material with 100% passing the No. 30 sieve and 65% to 100% passing the No. 200 sieve when tested in accordance with TxDOT Tex-401-A.

E. Storage
1. The method of handling and storing concrete aggregate shall prevent contamination with foreign materials.
2. If the aggregates are stored on the ground, the sites for the stockpiles shall be clear of all vegetation and level.
   a. The bottom layer of aggregate shall not be disturbed or used without recleaning.
3. When conditions require the use of two (2) or more sizes of aggregates, they shall be separated to prevent intermixing.
   a. Where space is limited, stockpiles shall be separated by physical barriers.
4. Methods of handling aggregates during stockpiling and subsequent use shall be such that segregation will be minimized.
   a. If segregation is apparent, the stockpile shall be remixed and tested.
5. Unless otherwise authorized by the Owner, all aggregate shall be stockpiled at least twenty-four (24) hours to reduce the free moisture content.

F. Supplementary Cementing Materials (SCM)
1. Fly Ash
   a. Shall conform to TxDOT DMS-4610
      1) Do not use class C Fly Ash in sulfate-resistant concrete
2. Ultra-Fine Fly Ash (UFFA)
   a. Shall conform to TxDOT DMS-4610
3. Ground Granulated Blast-Furnace Slag (GGBFS)

a. Shall conform to TxDOT DMS-4620, Grade 100 or 120

4. Silica Fume
   a. Shall conform to TxDOT DMS-4630
5. Metakaolin
   a. Shall conform to TxDOT DMS-4635

2.04 Mixing Water

1. Water for use in concrete shall be free from oils, acids, organic matter or other deleterious substances.
2. Water from municipal supplies approved by the State Health Department will not require testing, but water from other sources will be sampled and tested before use in structural concrete.
3. Water shall be in accordance with TxDOT Item 421.
   a. Any testing required for approval of use is the responsibility of the Contractor.
4. The water source shall be able to supply the required amounts of water and shall be maintained in such condition to insure completion of the work under way without excessive delays for repairs or replacements.
5. The water source shall be arranged so that the amount of water can be measured accurately.

2.05 Admixtures

1. Admixtures must be in conformance with TxDOT DMS-4640 and ASTM C 494 or ASTM C 1017 (for flowing concrete only).
   a. Any testing required for approval of use is the responsibility of the Contractor.
2. Dosage rates of admixtures shall be determined prior to use by means of trial mixes made with materials to be used and under anticipated construction conditions.
3. Calcium Chloride will not be permitted.
4. Storage shall be in accordance with the manufacturers recommendations.

2.06 Mortar and Grout

1. Mortar for repair of concrete shall consist of one (1) part hydraulic cement, two (2) parts finely graded sand, and sufficient water to make the mixture plastic and can be easily handled and spread by trowel.
2. When required to prevent color difference, white cement shall be added to produce the color required.
3. When required by the Owner, latex adhesive shall be added to the mortar.

2.07 Epoxy

1. Epoxy materials shall conform to TxDOT DMS-6100.
2. Epoxy Bonding Compound for bonding new concrete to hardened concrete or other structural material
   a. Epoxy Bonding Compound shall be a two component, 100% solids, moisture insensitive system.
3. Epoxy Grout for Epoxy patch on non-horizontal surfaces to concrete
   a. Epoxy Compound shall be a low-modulus, high viscosity, moisture insensitive system.

2.08 Expansion Joint Material

1. Preformed Fiber Material
   a. Preformed fiber expansion joint material shall be of the dimensions shown on the Drawings.
   b. At the Contractor's option, the material shall be one of the following types, unless otherwise noted on the Drawings:
      1) Asphalt Board
         a) Asphalt Board shall consist of two (2) liners of 0.016-inch asphalt impregnated paper, filled with a mastic mixture of asphalt and vegetable fiber and/or mineral filler.
         b) Boards shall be smooth, flat and sufficiently rigid to permit installation.
         c) When tested in accordance with TxDOT Tex-524-C, the asphalt board shall not deflect from the horizontal more than one inch (1") in three and one-half inches (3 1/2").
         d) Bituminous fiber and bituminous mastic composition material conforming to ASTM D 994 and ASTM D 1751
      2) Wood
         a) Shall be Filler board of selected stock.
         b) Use wood of density and type as follows:

(1) Clear, all-heart cypress weighing no more than 40 pounds per cubic foot, after being oven dried to constant weight.
(2) Clear, all-heart redwood weighing no more than 30 pounds per cubic foot, after being oven dried to constant weight.

3) Rebonded Neoprene Filler

a) Rebonded neoprene filler shall consist of ground closed-cell neoprene particles, rebonded and molded into sheets of uniform thickness of the dimensions shown on Drawings.

b) Filler material shall have the physical properties in Table 3 and shall meet the requirements of ASTM D1752, Type 1 where applicable:

Table 3
Filler Material Properties

Property	Method	Requirement
Color	ASTM D1752 Type 1	Black
Density	ASTM D1752 Type 1	40 PCF Min
Recovery	ASTM D1752 Type 1	90% Min.
Compression	ASTM D1752 Type 1	50 to 500 psi
Extrusion	ASTM D1752 Type 1	0.25 In. Max.
Tensile Strength	ASTM D1752 Type 1	20 psi Min.
Elongation		75% Min

c) The manufacturers shall furnish the Owner with certified test results as to the compliance with the above requirements and a twelve-inch (12") x twelve-inch (12") x one-inch (1") sample from the shipment for approval.

2. Joint Sealing Materials

a. Unless otherwise shown on the Drawings, joint sealing material shall conform to the following requirements:

1) The material shall adhere to the sides of the concrete joint or crack and shall form an effective seal against infiltration of water and incompressible.
2) The material shall not crack or break when exposed to low temperatures.
3) The material shall be one of the following:

a) Class 1-a
(1) Two component, Synthetic Polymer, Cold Extruded Type.
(2) Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles.
(3) This type is specifically designed for vertical or sloping joints and hence not self-leveling.
(4) It shall cure sufficiently at an average temperature leveling.
(5) It shall cure sufficiently at an average temperature of 77° F, ± 3° F maximum for twenty-four (24) hours.

b) Class 1-b
(1) Two component, Synthetic Polymer, Cold Pourable, Self Leveling Type.
(2) Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles.
(3) It shall cure sufficiently at an average temperature of 77° F ± 3° F maximum for three (3) hours.

c) For Sidewalks and Driveways
(1) Shall be Greenstreak #610 or approved equal installed over expansion joint filler.

4) Performance Requirements

a) Class 1-a and 1-b, when tested in accordance with TxDOT Tex-525-C, shall meet the above curing times and requirements as follows:
(1) It shall be of such consistency that it can be mixed and poured, or mixed and extruded into joints at temperatures above 60° F.

(2) Penetration at 77° F.
(a) 150 gm. cone, 5 sec., max. cm.....0.90
(3) Bond and Extension 75%, O° F, 5 cycles
(a) Dry Concrete Blocks.....Pass
(b) Wet Concrete Blocks.....Pass
(c) Steel Blocks (Primed if specified by Manuf.)...Pass
(d) Flow at 200° F.....None
(e) Water Content % by weight, max.....5.0
(4) Resilience
(a) Original sample min. % (cured).....50
(b) Oven aged at 158° F min. % 50
(5) For Class 1-a Material Only
(a) Cold Flow (10 min.).....None

b) Greenstreak #610
(1) Provide flexible, modified PVC (polyvinyl chloride) "G-SEAL" as manufactured by Greenstreak, profile style number 610.
(2) The modified PVC paving cap seal shall be extruded from an elastomeric plastic material of which the basic resins are prime virgin materials. The compound shall not contain any scrapped or reclaimed material whatsoever.
(3) Performance Requirements as noted in Table 4:

Table 4
Performance Requirements

Property	Test Method	Requirements
Tensile Strength	ASTM D412-92	2350 psi min.
Elongation	ASTM D412-92	375% min.
Hardness	ASTM D2240-95	81+/-3 Shore A
Oil Swell (ASTM Oil #3, 70 hrs @ 212° F change in volume/weight)	ASTM D471-95	+/- 15% by vol. +/- 15% by wt.
Ozone Resistance (20% strain, 300 pphm, 70 hrs @ 104° F)	ASTM D518-91	No Cracking
UV Resistance (2000hrs @ 70° F)	ASTM G53	2200 psi minimum 200% minimum
Abrasion Resistance (10,500 cycles, 1000 g load)	ASTM D 3884	Material Loss: -0.35 grams max.
Adhesive Bond Strength	ASTM D412-92	1000 psi min.
Results after Heat Aging (24 hrs @ 70° F)	ASTM D573	Tensile Strength retained: 90% Elongation retained: 90% Hardness change: +/-3 Shore A

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Forms

A. General
   1. Shall be in accordance with Section 03 11 13.11 CONCRETE FORMS
   2. Opening in forms shall be provided, if needed, for the removal of laitance of foreign matter of any kind.
   3. All forms shall be wetted thoroughly before the concrete is placed therein.
   4. If, at any stage of the work, the forms show signs of bulging or sagging, the portion of the concrete causing such condition shall be removed immediately, if necessary, and the forms shall be reset and securely braced against further movement.

3.03 Reinforcing Steel

A. Shall be in accordance with Section 03 21 11 REINFORCING STEEL

3.04 Equipment

A. Concrete Plant
   1. Certified by the National Ready Mixed Concrete Association (NRMCA) or have an inspection report signed and sealed by a Licensed Professional Engineer in the State of Texas showing that the equipment meets all requirements of ASTM C94.
      a. If the Plant is moved, it must be recertified.
      b. Plants with a licensed engineer's inspection are required to be reinspected every two (2) years.
      c. Provide a copy of the certification to the Owner's representative.
      d. When equipment fail to meet requirements it shall be removed from service and corrected.
   2. The batching Plant shall be provided with adequate bins for batching all aggregates and materials required by the specifications.

B. Mixing Equipment
   1. General
      a. All equipment, tools, and machinery used for mixing materials and performing any part of the work shall be maintained in such condition to insure completion of the work under way without excessive delays for repairs or replacements.
      b. When equipment fail to meet specification requirements it shall be removed from service and corrected.
      c. Mixers may be either the revolving drum type or the revolving blade type, and shall be capable of producing concrete meeting the required specifications.
         1) The mixer shall have a plate affixed showing the manufacturer's recommended operating data.
      d. Job mix concrete shall be concrete mixed in an approved batch mixer in accordance with the requirements of this specification, adjacent to the structure for which the concrete is being mixed, and moved to the placement site, in non-agitating equipment.
   2. Mixers and Agitators
      a. General
         1) Mixers shall be of an approved stationary or truck-type.
      b. Volumetric Mixers
         1) Capable of combining the materials into a thoroughly mixed and uniform mass.
         2) Shall have rating plates defining the capacity and the performance of the mixers in accordance with the Volumetric Mixer Manufacturers Bureau or equivalent.
         3) Mixers shall comply with ASTM C685.
         4) Provide information showing the mixers meet the uniformity test requirements of TxDOT Tex-472-A.
      c. Stationary Mixers

1) Capable of combining the ingredients into a thoroughly mixed and uniform mass within the specified time or the number of revolutions specified and capable of discharging concrete which satisfies five (5) of the six (6) requirements of TxDOT Tex-472-A.
2) Facilities shall be provided to permit ready access to the inside of the drum for inspection, cleaning and repair of blades.
3) Mixer shall be subject to daily examination for changes in condition due to accumulation of hardened concrete and/or wear of blades.
    a) Any hardened concrete shall be removed before the mixer will be permitted to be used.
    b) Worn blades shall be repaired or replaced in accordance with the manufacturer's design when any part or section is worn as much as ten percent (10%) below the original height of the manufacturer's design.
4) If deemed not adequate or suitable for the work, it shall be removed from the site upon a written order from the Owner and a suitable mixer shall be provided by the Contractor.
5) Truck mixers mounted on a stationary base will not be considered a stationary mixer.

d. Truck Mixer
1) Capable of combining the ingredients into a thoroughly mixed and uniform mass within the specified time or the number of revolutions specified and capable of discharging concrete which satisfies five (5) of the six (6) requirements of TxDOT Tex-472-A.
2) Certified by the National Ready Mixed Concrete Association (NRMCA) or have an inspection report signed and sealed by a Licensed Professional Engineer in the State of Texas showing that the equipment meets all requirements of ASTM C94.
3) Facilities shall be provided to permit ready access to the inside of the drum for inspection, cleaning and repair of blades.
4) Mixer shall be subject to daily examination for changes in condition due to accumulation of hardened concrete and/or wear of blades.
    a) Any hardened concrete shall be removed before the mixer will be permitted to be used.
    b) Worn blades shall be repaired or replaced in accordance with the manufacturer's design when any part or section is worn as much as ten percent (10%) below the original height of the manufacturer's design.
5) If deemed not adequate or suitable for the work, it shall be removed from the site upon a written order from the Owner and a suitable mixer shall be provided by the Contractor.
6) An engine in satisfactory working condition and capable of accurately going the desired speed of rotation shall be mounted as an integral part of the mixing unit for the purpose of rotating the drum.
7) Truck mixers equipped with a transmission that will govern the speed of the drum within the specified rpm will not require a separate engine.
8) All truck mixers shall be equipped with actuated counters by which the proper number of revolutions of the drum as specified may be readily verified.
    a) Counters
        (1) Truck mixers will be permitted to transport concrete to the job site at mixing speed if equipped with double actuated counters that will separate revolutions at mixing speed from total revisions.
        (2) Truck mixers equipped with a single actuated counter counting total revolutions of the drum shall mix the concrete at the Plant not less than fifty (50) nor more than seventy (70) revolutions at mixing speed, transport it to the job site at agitating speed and complete the required mixing before placing the concrete.
    b) The counters shall be read and recorded at the start of mixing at mixing speeds.
9) Shall have adequate water supply and accurate metering or gauging devices for measuring the amount used.

e. Agitators
1) Concrete agitators shall be of the truck type, capable of maintaining a thoroughly mixed and uniform concrete mass and discharging it within the same degree of uniformity specified for mixers.
2) Agitators shall comply with all of the requirements for truck mixers, except for the actual mixing requirements.

C. Hauling Equipment
    1. All equipment, tools, and machinery used for hauling materials and performing any part of the work shall be maintained in such condition to insure completion of the work under way without excessive delays for repairs or replacements.
    2. Certified by the National Ready Mixed Concrete Association (NRMCA) or have an inspection report signed and sealed by a Licensed Professional Engineer in the State of Texas showing that the equipment meets all requirements of ASTM C-94.
        a. Equipment with a licensed engineer's inspection is required to be reinspected every two (2) years.
        b. Provide a copy of the certification to the Owner's representative.
        c. When equipment fail to meet requirements it shall be removed from service and corrected.
    3. Provide equipment capable of maintaining the mixed concrete with a satisfactory degree of uniformity.
    4. When using non-agitating equipment for transporting concrete, provide equipment with smooth, mortar tight metal containers equipped with gates that prevent accidental discharge.

D. Placing Equipment
    1. The method and equipment used to transport concrete to the forms shall be capable of maintaining the rate of placement approved by the Owner.
        a. Concrete may be transported by buckets, chutes, buggies, belt conveyors, pumps or other acceptable methods.
        b. Chutes, troughs, conveyors or pipes shall be arranged and used so that the concrete ingredients will not be separated.
        c. All transporting equipment shall be kept clean and free from hardened concrete coatings.
            1) Water used for cleaning shall be discharged clean of the concrete.
        d. Belt Conveyors and Pumps
            1) When belt conveyors or pumps are used, sampling for testing will be done at the discharge end.
            2) Concrete transported by conveyors shall be protected from sun and wind, if necessary, to prevent loss of slump and workability.
        e. Pipes
            1) Pipes through which concrete is pumped shall be shaded and/or wrapped with wet burlap, if necessary, to prevent loss of slump and workability.
            2) Concrete shall not be transported through aluminum pipes, tubes or other aluminum equipment.
        f. Troughs and Chutes
            1) When steep slopes are necessary, the chutes shall be equipped with baffle boards or made in short lengths that reverse the direction of movement, or the chute ends shall terminate in vertical downspouts.
            2) Open troughs and chutes shall extend, if necessary, down inside the forms or through holes left in them.

E. Scales
    1. Check prior to use, after each move, or whenever the accuracy or adequacy is questioned, and at least once every six (6) months.
    2. Immediately correct deficiencies and recalibrate.
    3. Provide a record of calibration showing the scales are in compliance with ASTM C94.
    4. Check batching accuracy of volumetric water batching devices and admixture dispensing devices at least every ninety (90) days.
    5. Perform daily checks as needed to confirm accuracy.

F. Testing Equipment
    1. Shall be provided in accordance with the requirements of the tests and in working condition to provide accurate information.

3.05 Classification and Mix Design

A. General
    a. It shall be the responsibility of the Contractor to furnish the mix design, for the class(es) of concrete specified.

b. The mix shall be designed by a qualified concrete technician to conform with the requirements contained herein and in accordance with ACI 211.
c. The Contractor shall perform, at his own expense, the work required to substantiate the design.
d. It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, so that the mix conforms to these specifications and any other requirements shown on the Drawings.
e. In lieu of the above mix design responsibility, the Contractor may accept a design furnished by the Owner; however, this will not relieve him of providing concrete meeting the requirements of these specifications.

B. Aggregate
   a. Coarse Aggregate Factor
      1) The coarse aggregate factor shall not be more than 0.82, except that when the voids in the coarse aggregate exceed forty-eight percent (48%) of the total dry loose volume, the coarse aggregate factor shall not exceed 0.85.
      2) The coarse aggregate factor shall not be less than 0.70 for Grades 1, 2 and 3 aggregate.
   b. Recycled Aggregate
      1) Limit recycled crushed hydraulic cement concrete as a coarse or fine aggregate to Class A, B, D, E, and P concrete.
      2) Limit recycled crushed concrete fine aggregate to a maximum of twenty percent (20%) of the fine aggregate.

C. Strength
   1. If the strength required for the class of concrete being produced is not secured with the cement specified in Table 5, the Contractor may use an approved water reducing or retarding admixture, or the Contractor shall furnish aggregates with different characteristics that will produce the required results.

Table 5

Classes of Concrete

Class of Concrete	Design Strength[1] (psi)	Maximum Water to Concrete Ratio[2]	Coarse Aggregate Grades[3,4]	General Usage[5]
A	3,000	0.60	1-4, 8	Inlets, Manholes, Curb, Gutter, Curb & gutter, Concrete retards, Sidewalks, Driveways, Backup walls, Anchors
B	2,000	0.60	2-7	Riprap, Small roadside signs, and Anchors
C	3,600	0.45	1-6	Drilled shafts, Bridge Substructure, Bridge railing, Culverts (except top slab of direct traffic culverts), Headwalls, Wing walls, Approach slabs, Concrete traffic barrier (cast-in-place)
D	1,500	0.60	2-7	Riprap
E	3,000	0.50	2-5	Seal Concrete

F[6]	4,000 min Or as Noted on Drawings	0.45	2-5	Railroad structures; occasionally for bridge piers, columns, or bents
H[6]	4,000 min Or as Noted on Drawings	0.45	3-6	Prestressed concrete beams, Boxes, Piling, Concrete traffic barrier (precast)
S[6]	4,000 min Or as Noted on Drawings	0.45	2-5	Bridge slabs, Top slabs of direct traffic culverts
P	4,000 min Or as Noted on Drawings	0.45	2-3	Concrete pavement
DC[6]	5,500 min Or as Noted on Drawings	0.40	6	Dense concrete overlay
CO[6]	4,600 min Or as Noted on Drawings	0.40	6	Latex-modified concrete overlay
LMC[6]	4,000 min Or as Noted on Drawings	0.40	6-8	Slurry displacement shafts, Underwater drilled shafts

[1] – minimum twenty-eight (28) day f'c for all types of cement

[2] – Maximum water-cement or water-cementations ratio by weight

[3] – Do not use Grade 1 coarse aggregate except as approved by Owner, may not be used in Drilled shafts

[4] – Unless otherwise approved, use Grade 8 coarse aggregate in extruded curbs.

[5] – For information only, see Drawings and appropriate specifications for required class

[6] – Structural Concrete Classes

2. A higher class of concrete with equal or lower water to cementations material ratio may be substituted for the specified class of concrete.
3. To account for production variability and to ensure minimum compressive strength requirements are satisfied, the mix shall be over-designed in accordance with Table 6.

Table 6

Over Design Compressive Strength Requirements

No. of Tests	Standard Deviation (psi)				
	300	400	500	600	700
15	470	620	850	1,120	1,390
20	430	580	760	1,010	1,260
30 +	400	530	670	900	1,130

Note: When designing the mix the values above shall be added to the minimum design strength in Table 5

Number of tests of a concrete mixture used to estimate

D. Cementations Material
   1. Unless otherwise specified or approved, limit cementations material content to no more than 700 lb per cubic yard.
   2. Use only Type III cement only in precast concrete or when specified or permitted.

E. Admixtures
   1. Water Reducing or Retarding Agents
      a. Water reducing or retarding agents may be used with all classes of concrete at the option of the Contractor.
      b. When water reducing or retarding agents are used at the option of the Contractor, reduced dosage of the admixture will be permitted.
   2. Entrained Air Agents
      a. Entrained air will be required in all concrete, except Class B, in accordance with Table 7 unless otherwise shown on the Drawings.

Table 7

Air Entrainment

Aggregate Grade No.	% Air	
	Moderate Exposure	Severe Exposure
1	4	5
2	4 1/2	5 1/2
3	4 1/2	5 1/2
4	4 1/2	6
5	5	6
6	5 1/2	7
7	6	7 1/2
8	6	7 1/2

1. For specified concrete strengths above 5,000 psi a reduction of one (1) percentage point is permitted.

      b. Tolerances
         1) Shall contain the proper amount as required in Table 7 with a tolerance of plus or minus one and one-half percentage (1 1/2%) points.
         2) If the amount is beyond the above tolerance then the load of concrete will be rejected.

F. Consistency

1. General
   a. The concrete shall be workable, cohesive, possess satisfactory finishing qualities, and of the stiffest consistency that can be placed and vibrated into a homogenous mass.
   b. The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface.
   c. Excessive bleeding shall be avoided.
   d. Modifications
      1) In cases where the consistency requirements cannot be satisfied without exceeding the maximum allowable amount of water, the Contractor may use, or the Owner may require, an approved water reducing or retarding agent or the Contractor shall furnish additional aggregates, or aggregates with different characteristics, which will produce the required results.
      2) Additional cement may be required or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or admixture.

2. Slump
   a. Slump shall be in accordance with Table 8 using the lowest slump possible that can be placed and finished efficiently without segregation or honeycombing.

Table 8

Slump Requirements

Class of Concrete	Concrete Use	Recommended Design And Placement Slump [1] (inch)	Maximum Design and Placement Slump [2] (inch)
A B D	Inlets, Manholes, Curb, Gutter, Curb & gutter, Concrete retards, Sidewalks, Driveways, Backup walls, Anchors, Riprap, Small road signs, Slip-formed, Extruded	2.5 *or* Owner Approved	4 *or* Owner Approved
C F	Thin Walled Section (9 inch or less)	4	5
	Approach slabs, Concrete overlays, Caps, Columns, Piers, Wall sections (over 9 inch)	3	4
	Bridge railing, Concrete traffic barrier (cast-in-place)	4	6 1/2
	Drilled shafts (dry)	6 1/2	7 1/2
	Drilled shafts (underwater, under slurry)	5	6
H	Prestressed concrete beams, Boxes, Piling, Concrete traffic barrier (precast)	4	6 1/2

S	Bridge slabs, Top slabs of direct traffic culverts	4	5 1/2
P	Concrete pavement (slip-formed)	1 1/2	3
	Concrete pavement (formed)	4	6 1/2
DC	Dense concrete overlay	3/4	2
CO	Latex-modified concrete overlay	3	7 1/2
LMC	Slurry displacement shafts, Underwater drilled shafts	6	8 1/2
[1] – Recommended design and placement slump shall be as shown or as approved by Owner [2] – Maximum design and placement slump shall be as shown or as approved by Owner			

b. Concrete that exceeds the maximum acceptable slump at time of delivery will be rejected.
c. When approved, the slump may be increased above the values shown in Table 8 using chemical admixtures, provided that the admixture-treated concrete has the same or lower water-cement or water-cementations material ratio and does not exhibit segregation or excessive bleeding.
    1) Mix design must be approved by the Owner.

G. Mix Design Options
1. Shall be in accordance with TxDOT Item 421.

H. Sulfate-Resistant Concrete
1. When sulfate-resistant concrete is required, use mix design options 1, 2, 3, or 4 given in below using Type I/II, II, V, IP, or IS cement in accordance with ACI 318.
    a. Option 1
        1) Replace twenty percent (20%) to thirty-five percent (35%) of the cement with Class F fly ash.
    b. Option 2
        1) Replace thirty-five percent (35%) to fifty percent (50%) of the cement with Ground Granulated Blast-Furnace Slag
    c. Option 3
        1) Replace thirty-five percent (35%) to fifty percent (50%) of the cement with a combination of Class F fly ash, Ground Granulated Blast-Furnace Slag, or silica fume.
    d. Option 4
        1) Use Type IP or Type IS cement. (Up to ten percent (10%) of a Type IP or Type IS cement may be replaced with Class F fly ash, Ground Granulated Blast-Furnace Slag, or silica fume.)
2. Do not use Class C Fly Ash in sulfate-resistant concrete

I. Trial Batches
1. Trial batches will be made and tested using all the proposed ingredients prior to the placing of concrete, and when the aggregate and/or brand of cement or admixture are changed.
2. Trail batches shall be in accordance with TxDOT 421.
3. Trial batches shall be made in the mixer to be used on the job.
4. When Transit Mix concrete is to be used, the trial designs will be made in a transit mixer representative of the mixers to be used.
    a. Batch size shall not be less than fifty percent (50%) of the rated mixing capacity of the truck.
5. Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

3.06Mixing

A. Mixing Conditions
1. General
    a. The concrete shall be mixed in quantities required for immediate use.

2. Weather
    a. In threatening weather, which may result in conditions that will adversely affect quality of the concrete to be placed, the Owner may order postponement of the work.
    b. Where work has been started and changes in weather conditions require protective measures, the Contractor shall furnish adequate shelter to protect the concrete against damage from rainfall, or from freezing temperatures.
    c. If necessary to continue operations during rainfall, the Contractor shall also provide protective coverings for the material stockpiles.
    d. Aggregate stockpiles need be covered only to the extent necessary to control the moisture conditions in the aggregates to adequately control the consistency of the concrete.

B. Mixing
1. General
    a. The mixing shall be done in a batch mixer of approved type and size that will produce uniform distribution of the material throughout the mass.
    b. After all the ingredients are assembled in the drum, the mixing shall continue not less than one (1) minute for mixers of one (1) cubic yard or less capacity plus fifteen (15) seconds for each additional cubic yard or portion thereof.
    c. The mixer shall operate at the speed and capacity designated by the Mixer Manufacturers Bureau of the Associated General Contractors of America.
    d. The absolute volume of the concrete batch shall not exceed the rated capacity of the mixer.
    e. The entire contents of the drum shall be discharged before any materials are placed therein for the succeeding batch.
    f. The first batch of concrete materials placed in the mixer for each placement shall contain an extra quantity of sand, cement, and water sufficient to coat the inside surface of the drum.
    g. Upon the cessation of mixing for any considerable length of time, the mixer shall be thoroughly cleaned.
2. Mixing Water
    a. A portion of the mixing water, required by the batch design to produce the desired slump, may be withheld and added at the job site, but only with permission of the Owner and under his supervision.
    b. When water is added under the above conditions, it shall be thoroughly mixed in accordance with this specification delivery provision for water added at the job site.
3. Ready-Mix Plants
    a. General
        1) It shall be the Contractor's responsibility to furnish concrete meeting all requirements of the governing specifications.
    b. Mixing
        1) Ready-Mixed Concrete shall be mixed and delivered by means of one of the following approved methods.
        2) Mixers
            a) Stationary Mixed
                (1) Mixed completely in a stationary mixer and transported to the point of delivery in a truck agitator or a truck mixer operating at agitator or a truck mixer operating at agitation speed. (Central-Mix Concrete)
                (2) Mixed completely in a stationery mixer and transported to the job site in approved non-agitating trucks with special bodies. This method of transporting will be permitted for concrete pavement only.
            b) Truck Mixed
                (1) Mixed complete in a truck mixer and transported to the placement site at mixing and/or agitating speed (Transit-Mix Concrete), subject to the requirements of Mixing Equipment within this specification.

3.07 Quality of Concrete

A. General
1. The concrete shall be uniform and workable.
2. Improperly mixed concrete shall not be placed in the structure.

3. The cement content, maximum allowable water cement ratio, the desired and maximum slump and the strength requirements of the various classes of concrete shall conform to the requirements herein.
4. Sampling and Testing
   a. During the process of the work, the Owner or Inspector will require the Contractor to test the concrete actually placed.
   b. Testing Requirements
      1) Testing Rate shall be in accordance with Table 9:

Table 9

Testing Schedule

Class of Concrete	Testing Rate [1, 2]	General Usage [3]
A	1 Set Per 500 Linear Feet or less	Curb, Gutter, Curb & gutter
	1 Set Per 4,000 Square Feet or less	Sidewalks, Driveways
	1 Set Per 6 or less	Inlets, Manholes
	1 Set Per 30 cubic yards or less Or As required by Drawings and / or Owner	Concrete retards, Backup walls, Anchors
B	1 Set Per 50 cubic yards or less	Riprap, Small roadside signs
	1 Set Per 30 cubic yards or less Or As required by Drawings and / or Owner	Anchors
C	1 Set Per 30 cubic yards or less or As required by Drawings and / or Owner	Culverts (except top slab of direct traffic culverts), Headwalls, Wing walls
	As required by Drawings and / or Owner	Drilled shafts, Bridge Substructure, Bridge railing, Culverts (except top slab of direct traffic culverts),

		Headwalls, Wing walls, Approach slabs, Concrete traffic barrier (cast-in-place)
D	1 Set Per 50 cubic yards or less	Riprap
E	As required by Drawings and / or Owner	Seal Concrete
F	As required by Drawings and / or Owner	Railroad structures; occasionally for bridge piers, columns, or bents
H	As required by Drawings and / or Owner	Prestressed concrete beams, Boxes, Piling, Concrete traffic barrier (precast)
S	As required by Drawings and / or Owner	Bridge slabs, Top slabs of direct traffic culverts
P	1 Set Per 30 cubic yards or less or As required by Drawings and / or Owner	Concrete pavement
DC	As required by Drawings and / or Owner	Dense concrete overly
CO	As required by Drawings and / or Owner	Latex-modified concrete overly
LMC	As required by Drawings and / or Owner	Slurry displacement shafts, Underwater drilled shafts
[1] – For information only, see Drawings and appropriate specifications for required class [2] – Test rates are per day of work unless Owner approves otherwise [3] – For information only, see Drawings and appropriate specifications for required class		

2) Testing of Fresh Concrete
   a) Air Content
      (1) In accordance with TEX-414-A or TEX-416-A
   b) Slump
      (1) In accordance with TEX-415-A
   c) Temperature
      (1) In accordance with TEX-422-A
   d) Making and Curing Strength Specimens
      (1) In accordance with TEX-447-A
3) Testing of Hardened Concrete
   a) Compressive Strength
      (1) In accordance with TEX-418-A
   b) Flexural Strength
      (1) In accordance with TEX-448-A
   c) Maturity
      (1) In accordance with TEX-426-A

c. The Contractor shall provide and maintain curing facilities as described in the appropriate test procedure for the purpose of curing test specimens.
    1) It will be the responsibility of the Contractor to ensure that the test cylinders are handled in a manner to ensure that the test results are accurate.
d. When control of concrete quality is by twenty-eight (28) day compressive tests, job control will be by seven (7) day compressive tests that are shown to provide the required twenty-eight (28) day strength, based on results from trial batches.
e. If the required seven (7) day strength is not secured with the cement specified in the mix design, changes in the batch design shall be made
f. All test results shall be sent to the Owner upon completion of test.

3.08 Expansion Joints

A. Joints and devices to provide for expansion and contraction shall be constructed where and as indicated herein or on the Drawings.
B. All open joints and joints to be filled with expansion joint material, shall be constructed using forms adaptable to loosening or early removal.
C. To avoid expansion or contraction damage to the adjacent concrete, these forms shall be loosened as soon as possible after final concrete set to permit free movement without requiring full form removal.
D. Prior to placing the sealing material, the vertical facing the joint shall be cleaned of all laitance by sandblasting or by mechanical routing.
E. Cracked or spalled edges shall be repaired.
F. The joint shall be blown clean of all foreign material and sealed.
G. Where preformed fiber joint material is used, it shall be anchored to the concrete on one side of the joint by light wire or nails, to prevent the material from falling out.
H. The top one-inch (1") of the joint shall be filled with joint sealing material.
I. Finished joints shall conform to the indicated outline with the concrete sections completely separated by the specified opening or joint material.
J. Soon after form removal and again where necessary after surface finishing, all projecting concrete shall be removed along exposed edges to secure full effectiveness of the expansion joints.

3.09 Construction Joints

A. The joint formed by placing plastic concrete in direct contact with concrete that has attained its initial set shall be deemed a construction joint.
B. The term monolithic placement shall be interpreted to mean at the manner and sequence of concrete placing shall not create construction joints.
C. Construction joints shall be of the type and at the locations shown on the Drawings.
D. Additional joints will not be permitted without written authorization from the Owner, and when authorized, shall have details equivalent to those shown on the Drawings for joints in similar locations.
E. Unless otherwise provided, construction joints shall be square and normal to the forms.
F. Bulkheads shall be provided in the forms for all joints, except when horizontal.
G. Construction joints requiring the use of joint sealing material shall be as detailed on the Drawings.
H. The material will be specified on the Drawings without referenced to joint type.
I. A concrete placement terminating at a horizontal construction joint shall have the top surface roughened thoroughly as soon as practicable after initial set is attained.
J. The surfaces at bulkheads shall be roughened as soon as the forms are removed.
K. The hardened concrete surface shall be thoroughly cleaned of all loose material, laitance, dirt or foreign material and saturated with water so it is moist when placing fresh concrete against it.
L. Forms shall be drawn tight against the placing of the fresh concrete.

3.10Delivery of Concrete

A. General
    1. Delivery of concrete shall equal or exceed the rate approved by the Owner for continuous placement.
    2. In all cases, the delivery of concrete to the placement site shall assure compliance with the time limits in the applicable specification for depositing successive batches in any monolithic unit.
    3. The Contractor shall satisfy the Owner that adequate standby equipment are available.
B. Delivery Tickets
    1. A standard ticket system will be used for recording concrete batching, mixing and delivery date.
    2. Loads arriving without ticket and/or in unsatisfactory condition shall not be used.

3. Tickets will be delivered to the job inspector.

C. Mixers
   1. General
      a. When Ready-Mix Concrete is used, additional mortar (one (1) sack cement, three (3) parts sand and sufficient water) shall be added to the batch to coat the drum of the mixer or agitator truck and this shall be required for every load of Class C concrete only and for the first batch from central mix Plants.
   2. Stationary Mixer
      a. When a stationary mixer is used for the entire mixing operation, the mixing time for one (1) cubic yard of concrete shall be one (1) minute plus fifteen (15) seconds for each additional cubic yard or portion thereof.
      b. This mixing time shall start when all cement, aggregates and initial water have entered the drum.
      c. The mixer shall be charged so that some of the mixing water will enter the drum in advance of the cement and aggregate.
      d. All of the mixing water shall be in the drum by the end of the first one-fourth (1/4) of the specified mixing time.
      e. Water used to flush down the blades after charging shall be accurately measured and included in the quantity of mixing water.
      f. The introduction of the initial mixing water, except blade wash down water and that permitted in this specification, shall be prior to or simultaneous with the charging of the aggregates and cement.
      g. The drum shall be kept in continuous motion from the time mixing is started until the discharge is completed.

D. Truck Mixers
   1. The loading of truck mixers shall not exceed sixty-three percent (63%) of the total volume of the drum.
   2. When used as an agitator only, the loading shall not exceed eighty percent (80%) of the drum volume.
   3. The drum shall be kept in continuous motion from the time mixing is started until the discharge is completed.

E. Mixing Speed and Revolutions
   1. Mixing speed shall be attained as soon as all ingredients are in the mixer, and each complete batch (containing all the required ingredients) shall be mixed not less than seventy (70) nor more than one-hundred (100) revolutions of the drum at mixing speed
      a. Except that when water is added at the job site, twenty-five (25) revolutions (minimum) at mixing speed, will be required to uniformly disperse the additional water throughout the mix.
   2. Mixing speed shall be as designated by the manufacturer.
   3. All revolutions after the prescribed mixing time shall be at agitating speed.
   4. The agitating speed shall be not less than one (1) nor more than five (5) rpm.

3.11 Placing Concrete

A. General
   a. Before starting work, the Contractor shall inform the Owner fully of the construction methods he proposes to use, the adequacy of which shall be subject to the approval of the Owner.
   b. The Contractor shall give the Owner sufficient advance notice before placing concrete in any unit of the structure to permit the inspection of forms, reinforcing steel placement, and other preparations.
   c. Concrete shall not be placed in any unit prior to the completion of formwork and placement of reinforcement therein.
   d. Concrete mixing, placing and finishing shall be done in daylight hours, unless adequate provisions are made to light the entire site of all operations.
   e. Concrete placement will not be permitted when impending weather conditions will impair the quality of the finish work.
      1) If rainfall should occur after placing operations are started, the Contractor shall provide ample covering to protect the work.
      2) In case of drop in temperature, the provisions set forth in the "Placing Concrete in Cold Weather" of this specification shall be applied.

f. Concrete not meeting the slump, workability and consistency requirements of the governing specification, shall not be placed in the structure or pavement.
g. Any concrete that is not in place within the limits outlined in shall not be used.
h. The placing shall be regulated so the pressures caused by the plastic concrete shall not exceed the loads used in form design.
i. The method of handling, placing and consolidation of concrete shall minimize segregation and displacement of the reinforcement, and produce a uniformly dense and compact mass.
j. Concrete shall not have a free fall of more than five feet (5'), except in the case of thin walls such as in culverts.
   1) Any hardened concrete spatter ahead of the plastic concrete shall be removed.
k. The method and equipment used to transport concrete to the forms shall be capable of maintaining the rate of placement approved by the Owner.
l. Each part of the forms shall be filled by depositing concrete as near its final position as possible.
   1) The coarse aggregate shall be worked back from the face and the concrete forced under and around the reinforcement bars without displacing them.
   2) Depositing large quantities at one point and running or working it along the forms will not be allowed.
m. Concrete shall be deposited in the forms in layers of suitable depth but not more than thirty-six inches (36") in thickness, unless otherwise directed by the Owner.
n. An approved retarding agent shall be used to control stress cracks and/or unauthorized cold joints in mass placements where differential settlement and/or setting time may induce stress cracking.

B. Temperature and Time Allowances
1. The minimum temperature of all concrete at the time of placement shall be not less than 50° F.
2. The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface unless in accordance with section 03 35 29.13 CONCRETE FINISHING.
3. The maximum time interval between the addition of cement to the batch, and the placing of concrete in the forms shall not exceed the time in Table 10:

Table 10
Maximum Time Interval between
Addition of Cement to Placing

Air or Concrete Temperature	Maximum Time
Non-Agitated Concrete	
Up to 80° F	30 minutes
Over 80° F	15 minutes
Agitated Concrete	
90° F or above	45 minutes
75° F to 89° F	60 minutes
35° F to 74° F	90 minutes

4. The use of an approved retarding agent in the concrete will permit the extension of each of the temperature-time maximums shown in Table 10:
   a. Thirty (30) minutes for direct traffic culverts,
   b. One (1) hour for all other concrete except that the maximum time shall not exceed thirty (30) minutes for non-agitated concrete.
5. The sequence of successive layers or adjacent portions of concrete shall be such that they can be vibrated into a homogenous mass with the previously placed concrete without a cold joint.
   a. Not more than one (1) hour shall elapse between adjacent or successive placement of concrete.
   b. Authorized construction joints shall be avoided by placing all concrete between the authorized joints in one (1) continuous operation.
6. Consolidation

a. All concrete shall be well consolidated and the mortar flushed to the form surfaces by continuous working with immersion type vibrators.
b. Vibrators that operate by attachment to forms or reinforcement will not be permitted, except on steel forms.
c. At least one (1) stand-by vibrator shall be provided for emergency use in addition to the ones required for placement.
d. The concrete shall be vibrated immediately after deposit.
e. Prior to the beginning of work, a systematic spacing of the points of vibration shall be established to insure complete consolidation and through working of the concrete around the reinforcement, embedded fixtures, and into the corners and angles of the forms.
f. Immersion type vibrators shall be inserted vertically, at point eighteen inches (18) to thirty inches (30) apart, and slowly withdrawn.
g. The vibrator may be inserted in a sloping or horizontal position in shallow slabs.
h. The entire depth of each lift shall be vibrated, allowing the vibrator to penetrate several inches into the preceding lift.
i. Concrete along construction joints shall be thoroughly consolidated by operating the vibrator along and close to but not against the joint surface.
j. The vibration shall continue until thorough consolidation, and complete embedment of reinforcement and fixtures is produced, but not long enough to cause segregation.
k. Vibration may be supplemented by hand spading or rodding, if necessary, to insure the flushing of mortar to the surface of all forms.

7. Slab concrete shall be mixed in a Plant located off the structure.
a. Carting or wheeling concrete batches over completed slabs will not be permitted until they have aged at least four full curing days.
b. If carts are used, timber Planking will be required for the remainder of the curing period.
c. Carts shall be equipped with pneumatic tires.
d. Curing operations shall not be interrupted for the purpose of wheeling concrete over finished slabs.
8. After concrete has taken its initial set, at least one (1) curing day shall elapse before placing strain on projecting reinforcement to prevent damage to the concrete.

C. Placing Concrete in Cold Weather
1. General
a. Concrete shall be placed as recommended in ACI 306.
b. The Contractor is responsible for the protection of concrete placed under any and all weather conditions.
c. Permission given by the Owner for placing during freezing weather will in no way relieve the Contractor of the responsibility for producing concrete equal in quality to that placed under normal conditions.
d. Should concrete placed under such conditions prove unsatisfactory, it shall be removed and replaced at no additional cost.
2. Cast-in-Place Concrete
a. Concrete may be placed when the atmospheric temperature is not less than 40° F and rising.
b. Concrete shall not be placed in contact with any material coated with frost or having a temperature less than 32° F.
c. When required, in order to produce the minimum specified concrete temperature, the aggregate and/or the water shall be heated uniformly, in accordance with the following:
1) The water temperature shall not exceed 180° F, and/or the aggregate temperature shall not exceed 150° F.
2) The heating apparatus shall heat the mass of aggregate uniformly.
3) The temperature of the mixture of aggregates and water shall be between 50° F and 85° F before introduction of the cement.
d. All concrete shall be effectively protected as follows:
1) Slab Concrete
a) The temperature of all unformed surfaces shall be maintained at 50° F or above for a period of 72 hours from time of placement and above 40° F for an additional 72 hours.

2) Piers, Culverts walls, Retaining walls, Parapets, Wing walls, Bottoms of Slabs, and Other Similar Formed Concrete
   a) The temperature at the surface of all concrete shall be maintained at 40° F or above for a period of 72 hours from time of placement.
   b) The temperature of all concrete, including the bottom slabs of culverts placed on or in the ground, shall be maintained above 50° F for a period of 72 hours from time of placement.
3) Protection shall consist of providing additional covering, insulated forms or other means, and if necessary, supplementing such covering with artificial heating.
4) Curing as specified in Section 03 39 11 CONCRETE CURING shall be provided during this period until all requirements for curing have been satisfied.
5) When impending weather conditions indicate the possibility of the need for such temperature protection, all necessary heating and covering material shall be on hand ready for use before placement.
6) Sufficient extra test specimen will be made and cured with the placement to ascertain the condition of the concrete as placed prior to form removal and acceptance.

3. Precast Concrete
   a. A fabricating Plant for precast products which has adequate protection from cold weather in the form of permanent or portable framework and covering, which protects the concrete when placed in the forms, and is equipped with approved steam curing facilities, may place concrete under any low temperature conditions provided:
      1) The framework and covering are placed and heat is provided for the concrete and the forms within one (1) hour after the concrete is placed.
      2) This shall not be construed to be one (1) hour after the last concrete is placed, but that no concrete shall remain unprotected longer than one (1) hour.
      3) For fabricating Plants without the above facilities and for job site precast products, the requirements of Section 03 39 11 CONCRETE CURING will apply.

D. Placing Concrete in Hot Weather
   1. Extra care shall be taken to reduce the temperature of the concrete being placed and to prevent rapid drying of newly placed concrete.
   2. When the outdoor ambient temperature is more than 90°F, the temperature of the concrete as placed shall not exceed 90°F.
   3. When high temperatures, low humidity and dry winds create conditions suitable for plastic cracking, an evaporation retarder may be required to be applied by spray one or more times during the finishing operation.
   4. A fog spray shall be used during finishing operations.
   5. Curing shall be started as soon as the surface of the fresh concrete is sufficiently hard to permit it without damage.

E. Placing Concrete in Water
   1. Concrete shall be deposited in water only when specified on the Drawings or with written permission by the Owner.
      a. Its surface shall be kept approximately level during placement.
   2. The forms or cofferdams shall be sufficiently tight to prevent any water current passing through the space in which the concrete is being deposited.
   3. Pumping will not be permitted during the concrete placing, nor until it has set for at least thirty-six (36) hours.
   4. The concrete shall be placed with a tremie, closed bottom-dump bucket, or other approved method, and shall not be permitted to fall freely through the water nor shall it be disturbed after it has been placed.
      a. Tremie
         1) The tremie shall consist of a watertight tube fourteen inches (14”) or less in diameter.
         2) It shall be constructed so that the bottom can be sealed and opened after it is in place and fully charged with concrete.
         3) It shall be supported so that it can be easily moved horizontally to cover all the work area and vertically to control the concrete flow.

4) The placing operations shall be continuous until the work is complete.

b. Bottom-dump Buckets
   1) Bottom-dump buckets used for underwater placing shall have a capacity of not less than one-half cubic yard (1/2 cubic yard).
   2) It shall be lowered gradually and carefully until it rests upon the concrete already placed and raised very slowly during the upward travel; the intent being to maintain still water at the point of discharge and to avoid agitating the mixture.
   3) The placing operations shall be continuous until the work is complete.

F. Placing Concrete in Box Culverts
   1. In general, construction joints will be permitted only where shown on the Drawings.
   2. Where the top slab and walls are placed monolithically in culverts more than four-feet (4') in clear height, an interval of not less than one (1) nor more than two (2) hours shall elapse before placing the top slab to allow for shrinkage in the wall concrete.
   3. The base slab shall be finished accurately at the proper time to provide a smooth uniform surface.
   4. Top slabs which carry direct traffic shall be finished as specified for roadway slabs in Section 03 35 11 CONCRETE FINISHING.
   5. Top slabs of fill type culverts shall be given a reasonable smooth float finish.

G. Placing Concrete in Foundations and Substructures
   1. Concrete shall not be placed in footings until the depth and character of the foundation has been inspected by the Owner and permission has been given to proceed.
   2. Placing of concrete footings upon seal courses will be permitted after the caissons or cofferdams are free from water and the seal course cleaned.
   3. Any necessary pumping or bailing during the concreting operation shall be done from a suitable sump located outside the forms.
   4. All temporary wales or braces inside cofferdams or caissons shall be constructed or adjusted as the work proceeds to prevent unauthorized construction joints in footings or shafts.
   5. When footings can be placed in a dry excavation without the use of cofferdams or caissons, forms may be omitted, if desired by the Contractor and approved by the Owner, and the entire excavation filled with concrete to the elevation of the top of footing.
      a. Note: Measurement for payment will be based on the footing dimensions as shown on the Drawings.

3.12 Epoxy

A. General Precaution
   1. The Contractor is advised to become familiar with type of epoxy, method of application, and its basic limitations prior to using the epoxy.

B. Bond New Concrete to Existing Concrete
   1. Surface Preparation
      a. The existing concrete or structural surface to which the new concrete is to be bonded shall be roughened and cleaned.
      b. The existing surface shall be made free from dust, laitance, grease, curing compounds, waxes and all foreign material.
      c. Cleaning shall be done in strict accordance with manufacturer instructions.
         1) Washing will not be allowed, unless authorized by Owner.
      d. During application of bonding compound, surface may be dry, moist, or wet, but surface shall be free of standing water.
   2. Proportioning and Mixing
      a. The epoxy shall be mixed in accordance with the manufacturer's instructions.
      b. The epoxy shall be used in a neat condition (without aggregate filler).
   3. Application of Epoxy
      a. The epoxy-bonding compound shall be applied in strict accordance with manufacturer instructions.
      b. Area adjacent to work shall be cleaned free of epoxy spills as to provide a neat appearance before work will be accepted.

C. Concrete Overlay
   1. The concrete overlay shall be in accordance with the Drawings and this section.

2. The concrete overlay shall be applied over the epoxy within a period of time that shall not exceed sixty percent (60%) of the tack free time of the epoxy.
    a. It is important for the Contractor to note that these times vary with the temperature and pot time.
    b. The allowable times must be determined from the tack free times that are provided by the manufacturer.
3. If the allowable period of time is allowed to elapse before concrete overlay can be placed, another layer of epoxy shall be applied prior to placement of the concrete.

D. Epoxy Grout for patch to non-horizontal surfaces to concrete:
1. Surface Preparation
    a. The existing concrete or structural surface to be bonded to shall be cleaned.
    b. The existing surface shall be made free from dust, laitance, grease, curing compounds, waxes and all foreign material.
    c. Cleaning shall be done in strict accordance with manufacturer instructions.
        1) Washing will not be allowed, unless authorized by Owner.
    d. During application of bonding compound, surface may be dry, moist, or wet, but surface shall be free of standing water, unless otherwise recommended by manufacturer
2. Proportioning and Mixing
    a. The epoxy shall be mixed in accordance with the manufacturer instruction.
    b. The epoxy may be mixed with dry masonry sand.
    c. Sand shall conform to ASTM C-144 with 100% passing a No. 8 sieve and not more than 15% to 35% passing a No. 50 mesh sieve.
    d. The amount of sand filler shall not exceed 3/4 to 1 (loose sand to epoxy by volume).
3. Application
    a. Epoxy shall be applied in strict accordance with manufacturer instructions.
    b. Area adjacent to work shall be cleaned free of epoxy spills as to provide a neat appearance before work will be accepted.

SECTION 03 35 11

CONCRETE FINISHING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the finishing of concrete as required to complete the project.

1.02 Related Sections

A. 03 31 11 CONCRETE STRUCTURES

1.03 References *The latest edition of the referenced item below shall be used.*

A. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 427, Surface Finishes for Concrete

B. American Concrete Institute

1.04 Submittals

A. Product Information

1. Clearly indicate within submittal that the product is in compliance with this and related Sections.

PART 2 - PRODUCTS

2.01 General

A. All equipment, tools, and machinery used and performing any part of the work shall be maintained in such condition to insure completion of the work under way without excessive delays for repairs or replacements.

2.02 Screed

A. The screed shall be designed rigid enough to hold true to shape and shall have sufficient adjustments to provide for the required camber.

B. A vibrating screed may be used if heavy enough to prevent undue distortion.

C. The screed shall be provided with a metal edge.

2.03 Hand Operated Fogging Equipment

A. Shall be capable of producing a fine mist, not a spray.

B. Equipment shall pump water or water and air under high pressure through a suitable atomizing nozzle.

C. Shall be portable enough to use in the direction of any prevailing wind and adaptable for intermittent use to prevent excessive wetting of the concrete.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.

1. In the event that a requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

B. When field conditions are such that additional moisture is needed for the final concrete surface finishing operation, the required water shall be applied to the surface by fog spray only, and shall be held to a minimum.

3.02 Treatment and Finishing of Horizontal Surfaces Except Roadway Slabs

A. All uniformed upper surfaces shall be struck off to grade and finished.

B. The use of mortar topping for surfaces under this classification will not be permitted.

C. After the concrete has been struck off, the surface shall be floated with a suitable float.

D. Sidewalks

1. Shall be given a broom finish or may be stripped with a brush, as indicated on the Drawings or specified by the Owner.
2. Finish shall be perpendicular to the centerline providing a slip resistant surface.

E. Other surfaces

1. Shall be float finished and stripped with a fine brush leaving a fine-grained texture.

3.03 Finish of Roadway Slabs

A. As soon as the concrete has been placed and vibrated in a section of sufficient width to permit working, the surface shall be approximately leveled, struck off and screed, carrying a slight excess of concrete ahead of the screed to insure filling of all low spots.

B. Screed
   1. The surface of the concrete shall be screed a sufficient number of times and at such intervals to produce a uniform surface, true to grade and free of voids.
   2. Longitudinal screeds shall be moved across the concrete with a saw-like motion while their ends rest on headers or templates set true to the roadway grade or on the adjacent finished slab.
   3. If necessary, the screed surface shall be worked to smooth finish with a long handled wood or metal float of the proper size, or hand floated from bridges over the slab.

C. When required by the Owner, the Contractor shall perform sufficient checks with a long handled ten-foot (10') straightedge on the plastic concrete to insure that the final surface will be within the tolerances specified below.
   1. The check shall be made with the straightedge parallel to the centerline.
   2. Each pass thereof shall lap half of the preceding pass.
   3. Ordinates of irregularities measured from the face of the straight-edge to the surface of the slab shall not exceed one-eighth of an inch (1/8") in depth shall be filled with fresh concrete and floated, making proper allowances for camber, vertical curvature and surface texture.
   4. Occasional variations, not exceeding three-sixteenth of an inch (3/16") will be acceptable, if in the opinion of the Owner it will not affect the riding qualities.
   5. The checking and floating shall be continued until the surface is true to grade and free of depressions, high spots, voids or rough spots.

D. Rail support holes shall be filled with concrete and finished to match the top of the slab.

E. Finish
   1. Upon completion of the floating and/or straight edging and before the disappearance of the moisture sheen, the surface shall be given a finish as indicated within the Drawings or as directed by the Owner.
   2. Should the texture depth fall below that intended, the finishing procedures shall be revised to produce the desired texture.

F. In all roadway slab finishing operations, camber for specified vertical curvature and transverse slopes shall be provided.

3.04 Finishing Exposed Surfaces

A. Concrete shall be finished as required for the respective items or as otherwise specified on the Drawings.

B. An ordinary surface finish shall be applied to all concrete surfaces either as a final finish or preparatory to a higher finish.

C. Ordinary Surface Finish shall be as follows:
   1. After form removal, all porous or honeycombed areas and spalled areas shall be corrected by chipping away all loose or broken material to sound concrete.
   2. Featheredges shall be eliminated by cutting a face perpendicular to the surface.
   3. Shallow cavities shall be repaired using adhesive grout or epoxy grout.
   4. If judged repairable by the Owner, large defective areas shall be corrected using concrete or other material approved by the Owner.
   5. Holes and spalls caused by removal of metal ties, etc., shall be cleaned and filled with adhesive grout or epoxy grout.
   6. Exposed parts of metal chairs on surfaces to be finished by rubbing, shall be chipped out to a depth of one-half inch (1/2") and the surface repaired.
   7. All fines, runs, drips or mortar shall be removed from surfaces that remain exposed.
   8. Form marks and chamfer edges shall be smoothed by grinding and/or dry rubbing.
   9. Grease, oil, dirt, curing compound, etc., shall be removed from surfaces requiring a higher grade of finish.
   10. Discolorations resulting from spillage or splashing of asphalt, paint or other similar material shall be removed.
   11. Repairs shall be dense, well bonded and properly cured, and when made on surfaces that remain exposed and do not require a higher finish, shall be finished to blend with the surrounding concrete.

SECTION 03 39 11

CONCRETE CURING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the curing of concrete as required to complete the project.

1.02 elated Sections

A. 03 31 11 CONCRETE STRUCTURES

1.03 References *The latest edition of the referenced item below shall be used.*

A. American Concrete Institute (ACI) 318, **Building Code Requirements for Structural Concrete**

B. Texas Department of Transportation Departmental Material Specification DMS-4650, "Hydraulic Cement Concrete Curing Materials and Evaporation Retardants"

C. AASHTO Method T-26, "Standard Method of Test for Quality of Water to be used in Concrete"

1.04 Submittals

A. Product Information

1. Clearly indicate within submittal that the product is in compliance with this and related Section(s).

PART 2 - PRODUCTS

2.01 Membrane Curing

A. Membrane curing materials shall comply with Texas Department of Transportation (TxDOT) Departmental Material Specification DMS-4650.

B. It shall be of such consistency that it can be satisfactorily applied as a fine mist through an atomizing nozzle by means of approved pressure spraying equipment at atmospheric temperatures above 40° Fahrenheit.

C. It shall be of such nature that it will not produce permanent discoloration of concrete surfaces nor react deleteriously with the concrete or its components.

D. Type 1 compound shall contain a fugitive dye that will be distinctly visible not less than four (4) hours nor more than seven (7) days after application.

E. The compound shall produce a firm, continuous, uniform moisture impermeable film free from pinholes and shall adhere satisfactorily to the surfaces of damp concrete.

F. It shall, when applied to the damp concrete surface, at the rate of coverage specified herein, dry to touch in not more than four (4) hours and shall adhere in a tenacious film without running off or appreciable sagging.

G. It shall not disintegrate, check, peel or crack during the required curing period.

H. The compound shall not peel or pick up under traffic and shall disappear from the surface of the concrete by gradual disintegration.

I. The compound shall be delivered to the job only in the manufacturer's original containers, which shall be clearly labeled with the manufacturer's name, the trade name of the material, and a batch number or symbol with which test samples may be correlated.

J. Percentage loss shall be defined as the water lost after the application of the curing material was applied.

K. The permissible percentage moisture loss (at the rate of coverage specified herein) shall not exceed the following:

1. 24 hours after application.....2 percent (2%)
2. 72 hours after application.....4 percent (4%)

L. Type 1 (Resin Base Only) curing compound will be permitted for slab concrete in bridge decks and top slabs of direct traffic culverts.

2.02 Mat Curing

A. Wet Mat

1. Shall be one (1) of the following:
   a. Cotton mats shall be used for this curing method.
   b. Damp burlap blankets made from nine-ounce stock

2.03 Water

A. Water for use in curing shall be free from oils, acids, organic matter or other deleterious substances and shall not contain more than 1000 parts per million of chlorides as CL nor than 1000 parts million of sulfates as SO_4.
B. Water from municipal supplies approved by the State Health Department will not require testing, but water from other sources will be sampled and tested before use.
C. Tests shall be made in accordance with AASHTO Method T-26, except where such methods are in conflict with provisions of this specification.
D. Seawater will not be permitted.
E. Water that stains or leaves an unsightly residue shall not be used.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.
B. The Contractor shall inform the Owner fully of the methods and procedures proposed for curing; shall provide the proper equipment and material in adequate amounts, and shall have the proposed method, equipment and material approved prior to placing concrete.
C. Inadequate curing and/or facilities therefore shall be cause for the Owner to stop all construction on the job until remedial action is taken.

3.02 Curing Period

A. All concrete shall be cured for a period of seven (7) curing days except as noted below:

Table 1
Curing Days of Selected Concrete

Description	Required Curing
Top slabs of Direct Traffic	Fourteen (14) curing days (Type I or III cement)
Culverts	Ten (10) curing days (Type II cement)
Concrete Piling *(non-prestressed)*	Ten (10) curing days

B. When the air temperature is expected to drop below thirty-five (35) degrees Fahrenheit, the water curing mats shall be covered with polyethylene sheeting, burlap-polyethylene blankets or other material to provide the protection required by Article "Placing Concrete in Cold Weather" of these specifications.
C. A curing day is defined as a calendar day when the temperature, taken in the shade away from artificial heat, is above fifty (50) degrees Fahrenheit for at least nineteen (19) hours, (colder days if satisfactory provisions are made to maintain the temperature at all surfaces of the concrete above forty (40) degrees Fahrenheit for the entire twenty-four (24) hours).
D. The required curing period shall begin when all concrete therein has attained its initial set.

3.03 Curing Methods

A. The following methods are permitted for curing concrete subject to the restrictions of Table 2 and the following requirements for each method of curing:
   1. Form Curing
      a. When forms are left in contact with the concrete, other curing methods will not be required except for cold weather protection.
   2. Water Curing
      a. General
         1) All exposed surfaces of the concrete shall be kept wet continuously for the required curing time.
      b. Wet Mat
         1) Mat curing of concrete is allowed where permitted by Table 2 in this specification or where otherwise approved by the Owner.
         2) They shall be placed as soon as possible after the surface has sufficiently hardened to prevent damage to the concrete.

3) The mats shall be weighted down adequately to provide continuous contact with all concrete surfaces where possible.
4) The surfaces of the concrete shall be kept wet for the required curing time.
5) Surfaces which cannot be cured by contact shall be enclosed with mats, anchored positively to the forms, or to the ground, so that outside air cannot enter the enclosure.
6) Sufficient moisture shall be provided inside the enclosure to keep all surfaces of the concrete wet.

c. Water Spray
   a) This method shall consist of overlapping sprays or sprinklers that keeps all unformed surfaces continuously wet.

d. Ponding
   1) This method requires the covering of the surfaces with a minimum of two-inches(2") of approved clean granular sand material, kept wet at all times, or a minimum of one-inch depth of water.
   2) Satisfactory provisions shall be made to provide a dam to retain the water or saturated sand.

3. Membrane Curing
   a. This consists of curing concrete pavement, concrete pavement (base), curbs, gutters, retards, sidewalk, driveways, medians, islands, concrete riprap, cement stabilized riprap, concrete structures and other concrete as indicated on the Drawings by impervious membrane method.
   b. Unless otherwise provided herein or shown on the Drawings, either Type 1 or Type 2 membrane curing compound may be used where permitted except that Type 1 (Resin Base Only) will be permitted for slab concrete in bridge decks and top of direct traffic culverts.
   c. Membrane curing shall be applied to dry surfaces, but shall be applied just after free moisture has disappeared.
   d. Formed surfaces and surfaces which have been given a first rub shall be dampened and shall be moist at the time of application of the membrane.
   e. When membrane is used for complete curing, the film shall remain unbroken for the minimum curing period specified.
   f. Membrane which is damaged shall be corrected immediately by reapplication of membrane.
   g. Unless otherwise noted herein or on the Drawings, the choice of membrane type shall be at the option of the Contractor.
   h. Only one (1) type of curing compound will be permitted on any one (1) structure.
   i. The membrane curing compound shall be applied after the surface finishing has been completed, and immediately after the free surface moisture has disappeared.
   j. The surface shall be sealed with a single uniform coating of curing compound applied at the rate of coverage recommended by the manufacturer and directed by the Owner, but not less than one (1) gallon per 180 square feet of area.
   k. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of applications of the compound.
   l. The compound shall be thoroughly agitated during its use and shall be applied by means of approved mechanical power pressure sprayers.
   m. The sprayers used to apply the membrane to concrete pavement or concrete pavement (base) shall travel at uniform speed along the forms and be mechanically driven.
   n. The equipment shall be of such design that it will insure uniform and even application of the membrane material.
   o. The sprayers shall be equipped with satisfactory atomizing nozzles.
   p. Only on small miscellaneous items will the Contractor be permitted to use hand-powered spray equipment.
   q. For all spraying equipment, the Contractor shall provide facilities to prevent the loss of the compound between the nozzle and the concrete surface during the spraying operations.
   r. The compounds shall not be applied to a dry surface and if the surface of the concrete has become dry, it shall be thoroughly moistened prior to application of membrane by fogging or mist application.
   s. Sprinkling or coarse spraying will not be allowed.

t. At locations where the coating shows discontinuities, pinholes, or other defects; or if rain falls on the newly-coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

u. To insure proper coverage, the Owner shall inspect all treated areas after application of the compound for the period of time designated in the governing specification for curing, either for membrane curing or for other methods.

1) Should the foregoing indicate that any area during the curing period is not protected, an additional coat or coats of the compound shall be applied immediately, and the rate of application of the membrane compound shall be increased until all areas are uniformly covered.

v. When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

w. If at any time there is reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method and shall change to curing by one of the other methods specified under this contract.

B. The following methods are permitted for curing concrete subject to the restrictions of Table 2 and the following requirements for each method of curing:

Table 2
Curing Method

	REQUIRED		PERMITTED	
Structure Unit Description	Water for Curing	Membrane for Interim Curing	Water for Curing	Membrane for Interim Curing
Top slabs of direct traffic culverts	X	X		
Top surface of any concrete unit upon which concrete is to be placed and bonded at a later interval (Stub walls, risers, etc.)Other superstructure concrete (wing walls, parapet walls, etc.)	X			
Concrete pavement, curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete structures, concrete riprap, etc.			X*	X*
All substructure concrete, culverts, box sewers, inlets, manholes, retaining walls			X*	X*

* Polyethylene sheeting, burlap polyethylene mats, or laminated mats to prevent outside air from entering will be considered equivalent to water or membrane curing.

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for the clearing and grubbing as required to complete the project.

1.02 Related Sections

A. 31 22 13.10 SITE GRADING

1.03 Definitions *The words defined in this section shall for the purpose of the specifications have the meanings ascribed to them*

A. Clearing and Grubbing – the clearing, grubbing, and stripping of objectionable matter including the removing and disposing of trees, stumps, brush, roots, vegetation, rubbish and other objectionable matter from the project site by mechanical means.

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

B. The site shall be cleared of all trees, stumps, brush, roots, vegetation, rubble and other objectionable matter as indicated on Drawings, or as directed by the Owner.

C. Trees, Tree Stumps and Tree Roots
   1. Within Right-of-Way
      a. Area bounded by the lines two-feet (2') behind back of curbs
         1) Shall be removed to a minimum depth of two-feet (2') below bottom of proposed road subgrade elevation.
      b. Area bounded by the lines two-feet (2') behind back of curbs to Right-of Way line
         1) Shall be removed to a minimum depth of two-feet (2') below proposed finished grade or below natural grade, whichever is lower.
   2. Beyond Right-of-Way
      a. Shall be removed to a minimum depth of two-feet (2') below proposed finished grade or below natural grade, whichever is lower.

D. Vegetation, Humus, and Objectionable Matter
   1. Areas which underlie compacted backfill shall be stripped of all vegetation, humus and other objectionable matter encountered within the top six-inches (6") of the soil.
      a. This material, with the exception of objectionable matter, shall be stockpiled, if feasible, and reused as surface stabilization material.
   2. Objectionable matter shall be determined by the Owner and shall become the property of the Contractor and disposed of in accordance with Local, State, and Federal regulations, unless otherwise instructed by the Owner.

E. Holes remaining after removal of materials shall be backfilled in accordance with Section 31 22 13.10 SITE GRADING.

3.02 Disposal of Materials

A. Onsite
   1. The material shall be disposed of at a disposal site as indicated on the Drawings or as directed by the Owner.
   2. The Contractor is responsible for the disposal of materials in accordance with all applicable Local, State, and Federal regulations.

B. Offsite
   1. The material shall be disposed of at a disposal site obtained by the Contractor.

2. All material removed from site under this operation shall become the property of the Contractor's and therefore the Contractor's responsibility for proper disposal.
3. The Contractor is responsible for the disposal of materials in accordance with all applicable Local, State, and Federal regulations.

3.03 Protection

A. Existing Utilities
   1. All existing utilities shall be identified and protected by the Contractor.
   2. Damage to utilities shall be repaired by the Contractor at his sole expense as directed by the utility owner.

B. Trees, Vegetation, Landscaping, and Other Features
   1. That are designated to be preserved shall be protected by the Contractor.
   2. Damage shall be repaired by the Contractor at his sole expense as directed by the Owner of the item.
   3. Do not park equipment, service equipment, store materials, or disturb the root area under the branches of trees designated for preservation.

C. Benchmarks, monuments, and existing structures designated to remain shall be protected.
   1. Damage shall be repaired by the Contractor at his sole expense as directed by the Owner of the item.

3.04 Hazardous Materials

A. If the Contractor encounters hazardous substances, industrial waste, other environmental pollutants, underground storage tanks, or conditions conducive to environmental damage, the Contractor shall immediately stop work in the area affected and report the condition to the Owner's representative in writing.

B. Contractor shall not be responsible for or required to conduct any investigation, site monitoring, containment, cleanup, removal, restoration or other remedial work of any kind or nature (the "remedial work") under any applicable level, State or Federal law, regulation or ordinance, or any judicial order.

C. If the Contractor agrees in writing to commence and/or prosecute some or all of the remedial work, all costs and expenses, to include any extension of the contract time, of such remedial work shall be paid by the Owner to Contractor as additional compensation.

3.05 Archeological

A. In the event that archeological material is encountered during clearing and grubbing activities, the Contractor shall notify the Owner immediately and cease all work until notified by the Owner.
   1. The Contract Time may be adjusted if the work on the project is delayed.

3.06 Contamination

A. In the event that contaminated material is encountered during clearing and grubbing activities, the Contractor shall notify the Owner immediately and cease all work in the contaminated area until notified by the Owner.
   1. The Contract Time may be adjusted if the work on the project is delayed.

SECTION 31 22 13.10

SITE GRADING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for site grading as required to complete the project.

1.02 Related Sections

A. 31 11 00 CLEARING AND GRUBBING

1.03 Submittals

A. Product Information
   1. Clearly indicate within submittal that the product is in compliance with this and related Sections.

1.04 Definitions *The words defined in this section shall for the purpose of this specification have the meanings ascribed to them.*

A. Site Grading – all areas beyond the right-of-way of roadways and access ways

PART 2 - PRODUCTS

2.01 Fill

A. Shall be of similar material as to the natural occurring material onsite and approved by the Owner.
B. Shall be uniform as to material, density, and moisture content.
C. Shall be free of large clods, large rocks, organic matter, and other objectionable material.
D. In all cases material shall be free of construction materials (concrete rubble, pipe, fiberglass, asphalt material, metal, etc.) and trash material.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Site Preparation

A. Prior to site grading the site shall be cleared in accordance with Section 31 11 00 CLEARING AND GRUBBING.
B. Unless specified otherwise on Drawings, the existing surface shall be loosened by scarifying or plowing to a depth of not less than six-inches (6”).
C. The loosened material shall be re-compacted with any fill material required for the project.

3.03 Placement and Compaction

A. No fill that is placed by dumping in a pile or windrow, shall be incorporated into a layer in that position; all such piles and windrows shall be moved by blading or similar method.
B. All fill shall be placed in layers approximately parallel to the finish grade and in layers not in excess of six-inches (6”) of un-compacted depth, unless indicated otherwise on Drawings.
C. The fill shall be compacted to a density which approximates that of the existing natural ground unless indicated otherwise on Drawings.
D. The Owner may order test rolling to evaluate the uniformity of compaction.
E. All irregularities, depressions, and soft spots which develop shall be corrected by the Contractor.

3.04 Excess Material

A. Excess material from excavation that is not incorporated into the site as fill shall become the property of the Contractor, unless indicated otherwise on the Drawings.
B. The Contractor is responsible for disposal of the excess material away from the project in accordance with local, state, and federal regulations, unless indicated otherwise on the Drawings.

SECTION 31 22 16.13

ROADWAY SUBGRADE SHAPING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for roadway subgrade shaping as required to complete the project.

1.02 Related Sections

A. 31 11 00 CLEARING AND GRUBBING

1.03 References *The latest edition of the referenced item below shall be used and obtained by the Contractor*

A. ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3))

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.

B. Prior to performing subgrade or base course work all utilities under pavement shall be inspected and tested prior to placement.
   1. The Contractor may proceed at his/her own risk, knowing that any repairs required to utilities that requires the removal and replacement of the subgrade, base, and/or pavement surface in accordance with relevant specification will be completed at the Contractors sole expense.

3.02 Stripping and Excavation

A. The site shall be cleared and grubbed in accordance with Section 31 11 00 CLEARING AND GRUBBING.

B. Unless otherwise noted, remove existing trees, shrubs, fences, curb, gutter, sidewalk, drives, paving, pipe and structures within the graded area which interfere with new construction of finished grading.

C. All suitable excavated materials shall be utilized, insofar as practicable, in constructing the required roadway sections or in uniformly widening embankments, flattening slopes, etc., as directed by the Owner.

D. Unwanted roadway excavation and roadway excavation in excess of that needed for construction shall become the property of the Contractor to be disposed of by him outside the limits of the right-of-way at a location suitable to the Owner.

E. "Unsuitable" material encountered below subgrade elevation in roadway cuts, when declared unwanted by the Owner, shall be replaced as directed by the Owner with material from the roadway excavation or with other suitable material.

F. Maintain moisture and density until covered by the subbase or base.

G. Remove soft or wet areas found at any time, replace with suitable material, and recompact (esp. utility trenches).

3.03 Subgrade Preparation

A. That area shown on the Drawings for roadway construction shall be cut to grade as indicated on the Drawings.

B. Irregularities exceeding two-inches (2") in sixteen-feet (16') shall be corrected.

C. Soft areas found at anytime shall be removed, replaced with acceptable material and compacted (esp. at utility trenches).

D. The correct moisture density relationship shall be maintained.

3.04 Matching Grades at Right-of-Way Line

A. Finished grade at the property line shall be as shown on the Drawings.

B. The Owner may require a reasonable amount of filling on private property where the sidewalk grade is above the property elevation with permission from property owner.

C. Use suitable material from the excavation.

D. Unless otherwise directed, cuts at right-of-way lines shall be made at a maximum slope of 3:1.

3.05 Drainage

A. During construction, the roadbed and ditches shall be maintained in such condition as to insure proper drainage at all times, and ditches and channels shall be so constructed and maintained as to avoid damage to the roadway section.

B. All slopes that, in the judgment of the Owner, require variation shall be accurately shaped, and care shall be taken that no material is loosened below the required slopes.

C. All breakage and slides shall be removed and disposed of as directed.

SECTION 31 22 16.23

CHANNEL SHAPING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for channel shaping as required to complete the project.

1.02 Related Sections

A. 31 22 13.10 SITE GRADING

B. 31 24 13.10 EMBANKMENTS

1.03 Submittals

A. Product Information

1. Clearly indicate within submittal that the product is in compliance with this and related Sections.

PART 2 - PRODUCTS

2.01 General

A. Where shown on the Drawings, selected materials shall be utilized in the formation channels, in which case the work shall be performed in such manner and sequence that suitable materials may be selected, removed separately and deposited within limits and at elevations required.

B. Material for fill shall be shall be in accordance with Section 31 22 13.10 SITE GRADING or Section 31 24 13.10 EMBANKMENTS

PART 3 - EXECUTION

3.01 General Information

A. Excavated slopes shall be finished in conformance with the lines and grades indicated on the Drawings.

B. When completed, the average plane of slopes shall conform to the slopes indicated on the Drawings and no point on completed slopes shall vary from the designated slopes by more than 0.5 foot measured at right angles to the slope, unless otherwise specified.

C. In no case shall any portion of the slope encroach on the roadbed.

D. The tops of excavated slopes and the end of excavation shall be rounded as shown on the Drawings.

E. All suitable materials removed from the excavation shall be used, insofar as practicable, in the formation of embankments in accordance with the specification, Section 31 24 13.10 EMBANKMENTS, or shall be otherwise utilized or satisfactorily disposed of as indicated on Drawings, or as directed, and completed work shall conform to the established alignment, grades and cross sections.

F. During construction, the channel shall be kept drained, insofar as practicable, and the work shall be prosecuted in a neat workmanlike manner.

G. Unwanted channel excavation in excess of that needed for construction shall become the property of the Contractor and removed from the site and properly disposed of in accordance with Local, State, and Federal regulations.

SECTION 31 23 16.13
TRENCHING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for trenching as required to complete the project.

1.02 References *The latest edition of the referenced item(s) below shall be used and obtained by the Contractor*

A. Part 1926, Subpart P – Excavations, Trenching, and Shoring of the Occupational Safety and Health Administration (OSHA) Standards and Interpretations

B. Texas Code Chapter 756 Subchapter C – Trench Safety

1.03 Submittals

A. Submit a Trench Safety Program specifically for the construction of trench excavation and designed in accordance with Local, State, and Federal standards and regulations for trench safety laws.

1. *Notice: Review of the safety program by the Owner will only be in regard to compliance with this specification and will not constitute, in any form, approval by the Owner nor relieve the Contractor of any obligations under Local, State, or Federal trench safety regulations.*

B. Construction and shop drawings containing deviations from local, state, and federal standards and regulations or special designs shall be sealed by a Registered Professional Engineer of the State of Texas and retained and paid by the Contractor.

1.04 Definitions *The words defined in this section shall for the purpose of this specification have the meanings ascribed to them.*

A. A trench shall be defined as a narrow excavation (in relation to its depth) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than fifteen feet (15').

B. Trenches as used herein, shall apply to any excavation in which structures, utilities, or other items as a result of construction are placed or removed regardless of depth.

C. Trench Safety Program as used herein, shall be a written and detailed plan that is developed by the Contractor with all methods and products used to provide for worker safety in excavation and trenching operations required during the project and includes all information required an in accordance with Local, State (Texas Code Chapter 756 Subchapter C – Trench Safety, but not limited to), and Federal (Part 1926, Subpart P – Excavations, Trenching, and Shoring of the Occupational Safety and Health Administration (OSHA) Standards and Interpretations, but not limited to) standards and regulations.

D. The Trench Safety System shall include, but are not limited to, sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering or diversion of water to provide adequate drainage.

1.05 Indemnification

A. The Contractor shall indemnify and hold harmless the Owner, its employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgments or claims by anyone for injury or death of person(s) resulting from the collapse or failure of trenches constructed under this Contract.

B. The Contractor acknowledges and agrees that this indemnity provision provides indemnity for the Owner, its employees and agents, in case the Owner, or its employees or agents, is negligent either by act or omission in providing for trench safety, including, but not limited to safety program and design reviews, inspections, failures to issue stop work orders, and the hiring of the Contractor.

C. Review of the safety program by the Owner will only be in regard to compliance with this specification and will not constitute approval by the Owner nor relieve the Contractor of any obligations under Local, State, or Federal regulations.

PART 2 - PRODUCTS

2.01 All products shall be in accordance with the Trench Safety Program.

PART 3 - EXECUTION

3.01 General Information

A. Worker Safety in excavations and trenches shall be provided by the Contractor in accordance with Occupational Safety and Health Administration (OSHA) Standards, 29 CFR, in accordance with Local and State regulations, and industry standards.

B. It is the sole responsibility of the Contractor, and not the Owner, to determine and monitor the specific applicability of a safety system to the field conditions to be encountered on the job site during the project.

3.02 Installation

A. Install and maintain the trench safety system in accordance with the Trench Safety Program and all Local, State, and Federal provisions.

B. Install specially designed trench safety systems in accordance with the Contractors trench excavation safety program for the locations and conditions identified in the program.

C. A competent person, as identified in the Contractors Trench Safety Program, shall verify that trench safety equipment are certified for the actual installation conditions.

3.03 Inspection

A. The Contractor or Contractors independently retained consultant, shall make daily inspections of the trench safety system(s) to ensure that the installed system(s) and operations meet the requirements of the Trench Safety Program, and Local, State, and Federal regulations.

B. If evidence of possible cave-ins, slides, or trench safety system failure is apparent, the Contractor shall immediately stop work in and around the trench and move all personnel and individuals to a safe location until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench.

C. The Contractor must maintain a permanent record of daily inspections on site.

SECTION 31 24 13.10
EMBANKMENT

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for the furnishing, placing, and compacting materials for the construction of roadways, embankments, levees, dikes, or any designated section of the roadway where additional material is needed as required to complete the project.

1.02 Related Sections

A. 31 11 00 CLEARING AND GRUBBING

1.03 References *The latest edition of the referenced item below shall be used.*

A. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 107 "Embankment"
B. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 204 "Sprinkling"
C. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 210 "Rolling"
D. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 216 "Proof Rolling"
E. Texas Department of Transportation (TxDOT) Test Procedure TEX-104-E
F. Texas Department of Transportation (TxDOT) Test Procedure TEX-106-E
G. Texas Department of Transportation (TxDOT) Test Procedure TEX-107-E
H. Texas Department of Transportation (TxDOT) Test Procedure TEX-115-E

1.04 Submittals

A. Product Information
    1. Clearly indicate within submittal that the product is in compliance with this and related Section(s).

PART 2 - PRODUCTS

2.01 General

A. In addition to the requirement in the excavation items of the specifications covering the general selection and utilization of materials to improve the roadbed, embankments shall be constructed in proper sequence to receive the select material layers shown on the Drawings, with such modifications as may be directed by the Owner.
B. The layer of embankment immediately preceding the upper layer of select material shall be constructed to the proper section and grade within a tolerance of not more than one-tenth of a foot (0.10') from the established section and grade when properly compacted and finished to receive the select material layer.

2.02 Materials

A. Shall be approved on-site material capable of forming a stable embankment.
B. Material shall be from on-site excavation free from vegetation or other objectionable material unless otherwise indicated on the Drawings.
C. Offsite Material
    1. When offsite material is to be used, the Contractor must comply with all local, state, and federal laws, ordinances, and regulations.
    2. The Contractor must demonstrate and satisfy to the Owner that all permits, contracts, and legal documentation are in place prior to obtaining the material.
    3. Prior to obtaining materials from offsite the Contractor shall provide all required material tests to analyze the material to insure compliance with specifications.
        a. When on-site excavation material is to be used and additional material from off-site is to be incorporated the materials shall be similar in properties.
D. Water
    1. Shall be free of objectionable materials.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.
B. Prior to placing embankment the area to be covered shall be stripped of all vegetation in accordance with Section 31 11 00 CLEARING AND GRUBBING.
C. Equipment shall be applicable to conduct the work as described in this specification or as specified on the Drawings.
D. Washes, gulleys, wet areas, and yielding areas shall be corrected as directed by the Owner.
E. Trees, stumps, roots, vegetation or other unsuitable materials shall not be placed in embankment.
F. Unless otherwise indicated on Drawings the surface of the ground which is to receive embankment shall be loosened by scarifying or plowing to depth of not less than six-inches (6”).
   1. The loosened material shall be re-compacted with the new embankment as hereinafter specified.
G. Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction.

3.02 Placement

A. Embankment shall be placed in layers not to exceed six-inch (6”) un-compacted depth and the full width of the embankment, unless otherwise noted.
   1. Where embankment is adjacent to a hillside or old roadbed, the existing slope shall be cut in steps to not less than the vertical depth of an un-compacted layer of six-inches (6").
B. The fill material shall be placed from the low side and compacted.
C. Each layer shall overlap the existing embankment by at least the width indicated by the embankment slope.
D. Where layers of unlike materials are adjacent to each other, each layer shall be featheredged for at least 100 feet or the material shall be so mixed as to prevent abrupt changes in the soil.
E. No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or similar methods.
F. Clods or lumps of material shall be broken and the embankment material mixed by blading, harrowing, disking or similar methods to the end that a uniform material of uniform density is secured in each layer.
G. Except as otherwise required by the Drawings, all embankments shall be constructed in layers approximately parallel to the finished grade and each layer shall be so constructed as to provide a uniform slope of quarter-inch (1/4”) per foot from the centerline of the embankment to the outside.

3.03 Compaction

A. Each layer shall be compacted to the required density by rolling in accordance with TxDOT Item 210.
B. Prior to and in conjunction with the rolling operation, each layer shall be brought to the moisture content necessary in accordance with TxDOT Item 204 to obtain the required density
C. Prior to and in conjunction with the rolling operation, each layer shall be kept leveled with suitable equipment to insure uniform compaction over the entire layer.
D. Rolling shall be longitudinally, begin at the sides, and proceed toward the center, overlapping on successive trips by at least 1/2 the width of the roller.
E. All irregularities, depressions, weak or soft spots which develop shall be corrected immediately by the Contractor.

3.04 Density Control

A. Laboratory Tests shall determine the maximum dry density (D_a) and optimum moisture content (W_{opt}) by means of TxDOT TEX-114-E
B. Field density determinations will be made in accordance with TxDOT TEX-115-E and on Table 2:

Table 2
Field Density Control Requirements

Description	Density	Moisture Content
	TEX-115-E	
PI ≤ 15	≥ 98% D_a	
15 < PI ≤ 35	≥ 98% D_a and ≤ 102% D_a	≥ W_{opt}

PI > 35	≥ 95% D_a and ≤ 100% D_a	≥ W_{opt}

C. After each layer of earth embankment or select material is complete, testing as required by the Owner will be made by the Contractor.
D. If the material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified compaction, and the compaction method shall be altered on subsequent work to obtain specified density.
E. Such procedure shall be determined by, and subject to, the approval of the Owner.
F. The Owner may order proof rolling to test the uniformity of compaction of the embankment layers.
   1. Proof Rolling shall be in accordance with TxDOT Item 216

3.05 Maintenance of Moisture and Reworking

A. Should the subgrade, due to any reason or cause, lose the required stability, density or moisture, before the pavement structure is placed, it shall be re-compacted and refinished at the sole expense of the Contractor.
B. Excessive loss of moisture in the subgrade shall be prevented by sprinkling, sealing or covering with a subsequent layer or granular material.
C. Excessive loss of moisture shall be construed to exist when the subgrade soil moisture content is more than two-percent (2%) below the optimum.

SECTION 32 11 00

SUBGRADE AND BASE COURSE

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required, but not limited to, the furnishing and placement of subgrade and base course(s) as required to complete the project.

1.02 Related Sections

A. 32 11 13.13 LIME TREATED SUBGRADE
B. 32 11 13.26 CEMENT TREATED SUBGRADE
C. 32 11 23.23 FLEXIBLE BASE COURSE

1.03 Submittals

A. Product Information
   1. Clearly indicate within submittal that the product is in compliance with this and related specification(s).
B. Substitution of Base Course:
   1. Product substitution submittal shall be in writing and submitted fourteen (14) working days prior to commencing construction of the base course and contain the following information:
      a. Product information conforming the requirements of the related Section,
      b. Design of Substituted Base Course indicating equivalence to the Base Course as indicated on the Drawings,
      c. Indicating other Bid Items affected by such a proposed substitution.

PART 2 - PRODUCTS

2.01 Subgrade

A. Shall be as indicated on the Drawings.
   1. If no Subgrade Treatment is indicated in the Drawings the treatment shall be as follows:
      a. Sand Material
         1) Shall be as indicated on the Drawings.
            a) If not indicated on the Drawings, shall be Cement treated in accordance with Section 32 11 13.26 CEMENT TREATED SUBGRADE, unless otherwise indicated by the Owner.
      b. Other
         1) Shall be as indicated on the Drawings.
            a) If not indicated on the Drawings, shall be Lime treated in accordance with Section 32 11 13.13 LIME TREATED SUBGRADE, unless otherwise indicated by the Owner.

2.02 Base Course

A. Shall be as indicated on the Drawings
   1. Aggregate Base Course
      a. Shall be in accordance with Section 32 11 23.13 FLEXIBLE BASE COURSE

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.
B. Prior to performing subgrade or base course work all utilities under pavement shall be inspected and tested prior to placement.
   1. The Contractor may proceed at his/her own risk, knowing that any repairs required to utilities that requires the removal and replacement of the subgrade, base, and/or pavement surface in accordance with relevant specification will be completed at the Contractors sole expense.

3.02 Subgrade Treatment

A. Shall be as indicated on the Drawings and in accordance with the applicable specification for the

product required.

3.03 Base Course

A. Shall be as indicated on the Drawings and in accordance with the applicable specification for the product required.

3.04 Substitution of Drawing Indicated Subgrade and/or Base Course Material

A. General
   1. Substitution of Subgrade and/or Base Course materials, other than as indicated in the Drawings and Specifications is allowed subject to:
      a. A combination of strength and thickness that is equivalent to the Subgrade and/or Base Course strength and thickness as indicated in the Drawings and Specifications,
      b. Lines and Grades of the roadway surface must be maintained as indicated on the Drawings, including allowances for utilities,
      c. Owner and Engineer approval.
   2. The Contractor may request the Subgrade and/or Base Course product to be substituted in accordance with Part 1 Section 1.03 of this specification.

B. Effects of Substitution
   1. Proposed Utilities and Existing Utilities
      a. If the Subgrade and/or Base Course product being substituted changes the depth required for the Subgrade and/or Base Course and as a result the horizontal and/or vertical location of utilities, as indicated on the Drawings, or determined in the field, are required to be adjusted, then:
         1) The Contractor will be solely responsible for all costs associated with the changes including but not limited to; Designing, Drawing adjustments, Drawing reproduction, Specifications, Contract, Approvals, and incidentals, and,
   2. Lines and Grades
      a. Roadway
         1) If the Subgrade and/or Base Course product being substituted changes the depth required for the Subgrade and/or Base Course it is not to affect the lines and grades of the roadway and shall be maintained as indicated on the Drawings.
      b. Excavation
         1) If the substituted Subgrade and/or Base Course product changes the depth required for the Subgrade and/or Base Course and in turn affects the quantities of existing materials to be excavated and/or filled, it shall be the sole responsibility of the Contractor to determine and to ensure that the project can be completed as per the Contract and in accordance with the Lines and Grades as shown on the Drawings. The Contractor will be solely responsible for all costs associated with the changes including but not limited to: Additional labor, materials, equipment, maintenance, disposal, and all incidental expenses required to perform the changes.

SECTION 32 13 13
CONCRETE PAVING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the installation of Concrete Paving as required to complete the project.

1.02 Related Sections

A. 03 21 11 REINFORCING STEEL
B. 03 31 11 CONCRETE STRUCTURES

1.03 Submittals

A. roduct Information
   1. Clearly indicate within submittal that the product is in compliance with this and related specification(s).

PART 2 - PRODUCTS

2.01 Concrete

A. Unless otherwise specified on Drawings, materials and proportions for concrete used in construction under this item shall conform the requirements as specified for Class "A" Concrete under specification, Section 03 31 11 CONCRETE STRUCTURES.
B. All concrete shall be Class A with a minimum strength of 3,000 psi.

2.02 Reinforcing Steel

A. Reinforcing steel, if required, shall conform to the requirements as specified in the specification, Section 03 21 11 REINFORCING STEEL.
B. All steel shall be grade 60 with a minimum fy of 60,000 psi.

2.03 Expansion Joint Material

A. Expansion joint filler shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES and as noted on the Drawings.
B. Cap seal shall be Greenstreak #610 or approved equal installed over expansion joint filler.

2.04 Backfill

A. Material shall be the same or similar to the surrounding area which is free of stones and debris, or as directed by Owner.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.
B. Shall be constructed in sections of the lengths and widths shown on Drawings.
   1. Unless otherwise provided by the Drawings, no section shall be a length less than eight-feet (8').
   2. Each section shall be separated by an expansion joint.
C. All work per day shall terminate at expansion joints.
D. Provide machinery, tools, and equipment necessary for proper execution of the work.

3.02 Excavation and Foundation

A. Excavation shall be shaped to line, grade per typical cross section, and hand tamped and sprinkled.
B. The subgrade shall be as shown on the Drawings.

3.03 Forms

A. Forms shall be of wood or metal, of a section satisfactory to the Owner.
B. Be straight, free from warp, and of a depth equal to the thickness of the finished work.
C. Shall be securely staked to line and grade and maintained in a true position during the depositing of concrete.
D. Shall conform to the specified radius when placed on curves.

3.04 Reinforcing Steel

A. The reinforcing steel, if required, shall be placed in position as shown on the Drawings.
B. Care shall be exercised to keep all steel in its proper location.

3.05 Joints

A. Expansion Joints
   1. Shall be constructed a maximum of 39'-0" on center or as noted on Drawings or as directed by Owner.
      a. If attached to curb and gutter than the expansion joints shall align with the expansion joints of the curb and gutter, unless noted on the Drawings or directed by the Owner.
   2. Joint shall be 3/4" and be filled with expansion joint material placed vertically and at right angles to the longitudinal axis of the sidewalks.
   3. Where the paving abuts a retaining wall, sidewalk, curb, or other hard surface expansion joint shall be placed along the entire length.
   4. Expansion joint shall be placed around all obstructions protruding through paving.
   5. Dowels
      a. The dowel shall be extended across the joint nine inches (9") minimum and be sleeved or greased.
      b. When adjacent to existing curb and gutter or to existing sidewalk dowels shall be drilled into the existing concrete on eighteen-inch (18") on centers.

3.06 Control Joints

   1. Shall be tooled at the time of concrete placement at a maximum of 4'-0" on centers or evenly spaced between expansion joints, or as noted on Drawings or directed by the Owner.
   2. Shall be 1/2" depth by 1/8" width or as noted on Drawings or directed by Owner.

3.07 Concrete Placement

A. Concrete shall be mixed and placed in a manner satisfactory to the Owner.
B. The subgrade and reinforcement shall be slightly moist at the time the concrete is placed.
C. Shall be placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar entirely covers the surface.

3.08 Finishing

A. The top surface shall be floated with a wooden or metal float to a smooth gritty texture.
B. The outer edges and joints shall then be rounded with a one-half inch (1/2") radius with approved tools or as shown on Drawings.
C. Surface Finish
   1. Shall be broom finish or as noted on the Drawings
      a. The surface shall be textured with a heavy broom finish perpendicular to the common travel way.
   2. Other Finish
      a. The surface shall be as noted on the Drawings or as directed by the Owner.

3.09 Curing

A. Within twenty (20) minutes of the surface being textured the curing compound shall be applied.
B. Other methods of curing as outlined in the specification Section 03 31 11 CONCRETE STRUCTURES will be acceptable with a required curing period of 72 hours.
C. Concrete must be protected from freezing temperatures for at least three (3) days.

3.10 Backfill and Grading

A. Material shall be the same or similar to the surrounding area which is free of stones and debris, or as directed by Owner.
B. Grading shall promote positive drainage

SECTION 32 16 23
SIDEWALKS

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the installation of Sidewalks as required to complete the project.

1.02 Related Sections

A. 03 31 11 CONCRETE STRUCTURES
B. 03 21 11 REINFORCING STEEL
C. 03 39 11 CONCRETE CURING

1.03 References *The latest edition of the referenced item below shall be used.*

A. Texas Administrative Code, Title 16, Part 4, Chapter 68, Rule §68.10
B. Texas Accessibility Standards
C. Department of Justice ADA Standards for Accessible Design

1.04 Submittals

A. Product Information
   1. Clearly indicate within submittal that the product is in compliance with this and related specification(s).

1.05 Definitions *The words defined in this section shall for the purpose of this specification have the meanings ascribed to them.*

A. ADA Standards – shall mean compliance with the Texas Accessibility Standards and the Department of Justice ADA Standards for Accessible Design

PART 2 - PRODUCTS

2.01 Concrete

A. Unless otherwise specified on Drawings, materials and proportions for concrete used in construction under this item shall conform the requirements as specified for Class "A" Concrete under specification, Section 03 31 11 CONCRETE STRUCTURES.
B. All concrete shall be Class A with a minimum 28 day strength of 3,000 psi.

2.02 Reinforcing Steel and Dowels

A. Reinforcing steel and Dowels, if required, shall conform to the requirements as specified in the Section 03 21 11 REINFORCING STEEL, or as noted on the Drawings.
B. All steel shall be Grade 60 with a minimum fy of 60,000 psi.

2.03 Concrete Curing

A. Shall be in accordance with Section 03 39 11 CONCRETE CURING.

2.04 Expansion Joint Material

A. Expansion joint material shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES and as noted on the Drawings.

2.05 Detectable Surface

A. Unless otherwise stated, shall be in accordance with Texas Accessibility Standards for Detectable Warnings, Department of Justice ADA Standards for Accessible Design for Detectable Warnings, and the Drawings, otherwise specified by the Owner.

2.06 Pavement Markings

A. All stripping shall be in accordance with the standard details and specifications of the local governing entity.

2.07 Backfill Material

A. Select Backfill Material
   1. Shall be native on-site material from excavation, imported material, or a mixture of sand and clay or other suitable granular material free from vegetation, rocks, debris, and material that is in large clumps greater than two-inches (2”) meeting the following requirements:
      a. Liquid limit of thirty-five (35) maximum,
      b. Plasticity index range from eight (8) to twenty (20),
      c. Moisture range from -1% to 3%.

2. This material shall not include soils with a Unified Soil Classification System of OL, MH, OH, CH, and PT or soils with an AASHTO classification of A7.

B. Topsoil Backfill Material
   1. Suitable material chosen from the excavation may be used.
   2. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction.
   3. This material will be subject to approval by the Owner.
   4. Material shall be free of vegetation or other extraneous material.
   5. Should be stockpiled separately and used for finish grading.
   6. Capable of supporting a good growth of grass when fertilized and seeded or sodded.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, Manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.

B. Shall be constructed in sections of the lengths and widths shown on Drawings.
   1. Unless otherwise provided by the Drawings, no section shall be a length less than eight-feet (8').
   2. Each section shall be separated by an expansion joint.

C. All work per day shall terminate at expansion joints.

D. Provide machinery, tools, and equipment necessary for proper execution of the work.

3.02 Excavation and Subgrade

A. Excavation shall be shaped to line, grade per typical cross section, and hand tamped and sprinkled.

B. The subgrade shall be compacted to 95% Standard Proctor or as shown on the Drawings.

3.03 Forms

A. General
   1. Shall be in accordance with Section 03 11 13.11 CONCRETE FORMS
   2. Opening in forms shall be provided, if needed, for the removal of laitance of foreign matter of any kind.
   3. All forms shall be wetted thoroughly before the concrete is placed therein.
   4. If, at any stage of the work, the forms show signs of bulging or sagging, the portion of the concrete causing such condition shall be removed immediately, if necessary, and the forms shall be reset and securely braced against further movement.

3.04 Reinforcing Steel and Dowels

A. The reinforcing steel and Dowels shall be of type and placed in position as shown on the Drawings.

B. Care shall be exercised to keep all steel in its proper location.

3.05 Expansion Joints

1. Shall be constructed a maximum of 39'-0" on center or as noted on Drawings or as directed by Owner.
   a. If attached to curb and gutter than the expansion joints shall align with the expansion joints of the curb and gutter, unless noted on the Drawings or directed by the Owner.
2. Joint shall be 3/4" and be filled with expansion joint material placed vertically and at right angles to the longitudinal axis of the curb and gutter.
3. Where the sidewalk abuts a retaining wall, driveway, curb, or other hard surface expansion joint shall be placed along the entire length.
4. Expansion material shall be placed around all obstructions protruding through the sidewalk.
5. Dowels
   a. When required shall be extended across the joint nine-inch (9") minimum and be sleeved or greased on one (1) end.
   b. When adjacent to existing curb and gutter or to existing sidewalk dowels shall be drilled into the existing concrete on eighteen-inch (18") on centers.

3.06 Control Joints

1. Shall be tooled at the time of concrete placement at a maximum of 4'-0" on centers or evenly spaced between expansion joints, or as noted on Drawings or directed by the Owner.

2. Shall be 1/2" depth by 1/8" width or as noted on Drawings or directed by Owner.

3.07 Concrete Placement

A. Shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES
B. The subgrade and reinforcement shall be moist at the time the concrete is placed.
C. Shall be placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar entirely covers the surface.
D. Subgrade shall be slightly moist at the time the concrete is placed.

3.08 Finishing

A. The top surface shall be floated with a float to a smooth gritty texture.
B. The outer edges and joints shall then be rounded with a one-half inch (1/2") radius with approved tools or as shown on Drawings.
C. Surface Finish
   1. Shall be broom finish or as noted on the Drawings
      a. The surface shall be textured with a heavy broom finish perpendicular to the common travel way.
   2. Other Finish
      a. The surface shall be as noted on the Drawings or as directed by the Owner.

3.09 Curb Ramp with Detectable Surface

A. General
   1. Shall be installed in accordance with the Drawings and recommendations of the manufacturer.
   2. Properly constructed curb ramp shall be true to line, section, grade and shall be free of loose surfacing and irregularities.
   3. The subgrade shall be shaped to line, grade, cross section, and shall be of uniform density and moisture, when concrete is placed.
   4. The subgrade shall be hand tamped and sprinkled to achieve the desired consistency and uniform support.
   5. Unless shown otherwise on the Drawings, ramps shall have a minimum concrete thickness in excess of four-inches (4"), prior to application of textured surface.
B. Slope
   1. Slopes, S, shall be as shown in Table 1 unless shown otherwise on the Drawings:

Table 1
Required Slopes for Curb Ramps and Sidewalks

Ramp	Slope (S) [1]
Ramp in direction of travel	S ≤ 1:12
Side slope of ramp (flare)	S ≤ 1:10
Cross Slope	1:100 ≤ S ≤ 1:50
Sidewalks	Slope (S) [1]
Landings adjacent to ramp	S ≤ 1:20
Driveways abutting tied sidewalk	S ≤ 1:10

[1] In all cases the slope shall be in accordance with ADA Standards

C. Width of ramp
   1. Shall be as shown on the Drawings.
D. Obstructions
   1. Shall be removed or relocated, as appropriate, or the location of the ramp may be shifted, if authorized.
E. Detectable Warning
   1. Surfacing shall be flush with abutting areas and placed using a template as required to achieve an esthetic well-defined edge.
   2. Perpendicular Curb Ramps
      a. Within the public right of way, detectable warnings complying with TAS 705 at a minimum of 24" in depth (in the direction of pedestrian travel) and extending the full width of the curb ramp shall be provided where the pedestrian access route enters a crosswalk or other hazardous vehicular area.

3. Parallel Curb Ramps
    a. Within the public right-of-way, detectable warnings complying with TAS 705 at a minimum of 24" in depth (in the direction of pedestrian travel) and extending the full width of the landing shall be provided where the pedestrian access route enters a crosswalk or other hazardous vehicular area.
4. Diagonal Curb Ramps
    a. Within the public right-of-way, detectable warnings complying with TAS 705 at a minimum of 24" in depth (in the direction of pedestrian travel) and extending the full width of the curb ramp or landing, shall be provided where the pedestrian access route enters a crosswalk or other hazardous vehicular area.
    b. The detectable warning shall be curved with the radius of the corner.
5. The detectable warning shall be located so that the edge nearest the curb line is 6" minimum and 10" maximum from the curb line.
6. Abutting curbs, sidewalks, gutters, driveways, etc. shall not receive textured surfacing.

F. Pavement Markings for Street Crossings
1. Shall be placed such that the crosswalk is properly aligned with respect to the Curb Ramp. Curb ramp must be wholly contained within cross walk markings.
2. Proper alignment of striping with respect to intersection and curb ramp shall be done in accordance with ADA Standards, and the Drawings.
3. All stripping shall be in accordance with the standard details and specifications of the local governing entity.

3.10 Curing

A. Within twenty (20) minutes of the surface being textured the curing compound shall be applied.
B. Shall be as outlined in the Section 03 39 11 CONCRETE CURING will be acceptable with a required curing period of seventy-two (72) hours, unless shown otherwise on the Drawings.
C. Concrete must be protected from freezing temperatures for at least three (3) days.

3.11 Backfill and Grading

A. Material shall be the same or similar to the surrounding area which is free of stones and debris, or as directed by Owner.
B. Grading shall promote positive drainage.

SECTION 32 92 19
SEEDING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the placement and maintaining seeding as required to complete the project.

1.02 References *The latest edition of the referenced item below shall be used.*

A. Texas Agriculture Code – Chapter 63 Commercial Fertilizer
B. Texas Seed Law
C. US Department of Agriculture
D. Federal Seed Act

PART 2 - PRODUCTS

2.01 Topsoil

A. Shall be easily cultivated, fertile soil that is free from objectionable material which is able to support the required vegetation.
B. On-Site Material
   1. The Contractor shall obtain topsoil from on-site during Clearing and Grubbing operations and shall stockpile this material at a location shown on the Drawings or approved by the Owner.
   2. Material to be used from on-site shall be free of subsoil, clay lumps, non-soil materials, litter, contamination, and roots, stumps, woody material, and stones larger than two-inches (2”), and materials that the Owner deems inappropriate.
C. Off-Site Material
   1. The Contractor shall obtain topsoil from Owner approved off-site source(s).
   2. Material to be used from off-site shall be free of subsoil, clay lumps, non-soil materials, litter, contamination, and roots, stumps, woody material, and stones larger than two-inches (2”), and materials that the Owner deems inappropriate.

2.02 Fertilizer

A. All fertilizer used shall be delivered in bags or containers with clearly marked analysis, manufacturer, trademark, and all inert materials.
B. Shall be a granulated or pellet fertilizer.
C. Shall have an analysis containing nitrogen (N), phosphoric acid (P), and potash (K) nutrients unless otherwise specified on the Drawings.
   1. The analysis shall be 12(N)-12(P)-12(K) or as recommended by the Seed provider.
      a. These figures represent the percent of nitrogen, phosphoric acid, and potash nutrients respectively, as determined by the methods of the Association of Official Agricultural Chemists.
      b. At least fifty-percent (50%) of the nitrogen component must be of a slow-release formulation such as urea-based and plastic resin-coated fertilizers.
D. The rate of application shall be not less than recommended by the manufacturer.
E. In the event that it is necessary to substitute a fertilizer with a different analysis, it shall be with a lower analysis.
F. The total nutrients applied per unit area shall not be less that the specified amount of each nutrient.
G. Fertilizer is subject to testing by the Texas A&M Feed and Fertilizer Control Service in accordance with the Texas Agriculture Code – Chapter 63.

2.03 Seed

A. Seed shall be labeled and conform to the requirements of the US Department of Agriculture, Federal Seed Act, and Texas Seed Law.
B. Labels shall indicate purity, germination, name and type of seed.
C. Seed furnished shall be of the previous season's crop and the date of analysis shown on each bag shall be within twelve (12) months of delivery to the project.
D. The quantity of "Commercial Seed" required to equal the quantity of "Pure Live Seed" shall be computed by the following formula:
   1. Commercial Seed = Pure Live Seed x $\frac{10{,}000}{\%\ \text{Purity} \times \%\ \text{Germination}}$

E. The quantity of pure live seed (PLS) and type required are indicated below in Table 1 and Table 2, or as shown on the Drawings for mixture.

Table 1 Clay Soil Seed Mix		
Common Name	March l to September 30 (lb. PLS/acre)	October 1 to March 1 (lb. PLS/acre)
Green Sprangletop	0.3	--
Sideoats Grama (Haskell)	3.6	3.6
Common Bermuda grass (Hulled)	40.0	40.0
Common Bermuda grass (Unhulled)	--	40.0
Buffalo grass (Texoma)	1.6	1.6
Annual Rye grass	--	30.0
Foxtail Millet	34.0	--

Table 2 Sandy Soil Seed Mix		
Common Name	March l to September 30 (lb. PLS/acre)	October 1 to March 1 (lb. PLS/acre)
Green Sprangletop	0.3	0.3
Common Bermuda grass (Hulled)	40.0	40.0
Common Bermuda grass (Unhulled)	--	40.0
Buffalo grass (Texoma)	1.6	1.6
Annual Rye grass	--	30.0
Foxtail Millet	34.0	--

2.04 Mulch

A. Wood/Cellulose Blend Fiber Mulch
   1. Shall consist of:
      a. Seventy-percent (70%) long wood grain fibers produced from grinding clean, whole wood chips, and thirty percent (30%) cellulose fiber produced from ground newsprint, unless otherwise noted on the Drawings or indicated by the Owner.
   2. Mulch shall have no growth inhibiting ingredients.
   3. Shall be dried with a moisture content less that 10% by weight.
   4. Fibers shall be dyed an appropriate color to facilitate visual metering and application of mulch.
   5. The cellulose fiber shall be manufactured so that after addition and agitation in slurry tank with fertilizers, seeds, and other approved additives, the fibers in the material will become uniformly suspended to forms a homogeneous slurry
   6. When sprayed on the ground, the material shall form a uniform cover impregnated with seeds and the cover shall allow added water to percolate to the underlying soil.
   7. The fiber material shall be supplied in packages of not more than 100 pound gross weight and shall be suitable for outdoor storage for up to six (6) months.
      a. Package is to be marked by the manufacturer to indicate the manufacturer name, address, customer telephone number, the dry weight content, and material content analysis.

B. Hay

1. Hay shall be locally available and free of deleterious material, non-native grasses and material.
    a. If non-native grasses and material shall be apparent the Contractor will be required to remove this material by an Owner approved method.
2. The Owner and/or Owner shall approve the hay prior to placement.
    a. This approval does not relive the Contractor from any responsibilities of the removal of non-native grasses and materials.

2.05 Water

A. Water shall be free from oils, acids, alkali's, salts, industrial wastes, and other substances, which may inhibit vegetation growth.

B. Unless indicated otherwise on the Drawings, water shall be provided by the Contractor and shall be transported and applied by the Contractor with approved equipment and machinery, which is in good working order.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, manufacturer recommendations, and industry standards.

In the event that a requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Topsoil

A. The Contractor shall remove and dispose of objectionable material in accordance with local, state, and federal regulations.

B. Prior to placing topsoil the existing soil shall be cultivated to a depth of four-inches (4").

C. The approved topsoil shall be spread across the cultivated area to a uniform loose depth of four-inches (4") minimum or as specified on the Drawings or by the Owner.

D. The area shall be watered and lightly compacted by means of a light roller or other suitable equipment.
    1. Compaction shall be minimal and should not inhibit vegetative growth.

E. If the topsoil settles below the established grade or will not allow for positive run-off, the area shall have additional topsoil added and sprinkled with water and rolled as directed by the Owner.

F. The topsoil shall be protected from erosion from wind and water until protected by vegetation or other Owner approved method(s).

3.03 Equipment

A. The fertilizing, seeding and/or mulching operations shall be accomplished with equipment suitable to the required function.

B. It shall be of current design and in good operating condition.

C. Hydro Seeding Equipment
    1. Special seeding and mulching equipment must also meet the following requirements:
        a. Seeder
            1) Equipment for applying a seed-fertilizer mix shall be a hydraulic seeder designed to pump and discharge a waterborne, homogeneous slurry of seed and fertilizer.
            2) The seeder shall be equipped with a power driven agitator, and capable of pressure discharge.
        b. Wood/Cellulose Fiber Mulch Spreader
            1) Equipment used for this application of fertilizer, seeds, wood pulp, water and other additives shall have a built-in agitation system with sufficient capacity to agitate, suspend and homogeneously mix a slurry containing up to 40 lbs. of fiber plus the required fertilizer solids for each 100 gallons of water.
            2) It shall have sufficient agitation and pump capacity to spray a slurry in a uniform coat over the area to be mulched.

3.04 Mulch

A. Wood Cellulose Blend Fiber Mulch with Seeds
    1. After tilling, mulch shall be applied.
    2. Wood cellulose fibers shall be added to the hydraulic seeder after the proportionate amounts of seeds, fertilizer, water and other approved materials are added.
    3. Application shall be 1500 lb/acre on flats, 2000 lb/acre on 3:1 slopes, and 2500 lb/acre on 2:1 or

greater, or as recommended by the manufacturer and directed by the Owner.
4. The mulch shall provide a uniform cover over the soil surface.
5. Placement shall be in accordance with manufacturer's recommendations and as directed by the Owner.

B. Hay
1. Seed shall be applied to the surface at the appropriate rate as recommended by the manufacturer and/or directed by the Owner.
2. Hay shall be spread lightly across the area as directed by the Owner.
3. The area shall be lightly rolled and watered.

3.05 Maintenance

A. The Contractor will water, repair and reseed areas as required for a period of 45 days.
B. This includes erosion damage.
C. If at any time the seeded area becomes gullied or otherwise damaged, or the seedlings have been damaged or destroyed, the affected portion shall be re-established to the specified condition prior to acceptance of the work.

3.06 Guarantee

A. The Contractor shall assure ninety-five percent (95%) of the seeded area has established growth at forty-five (45) calendar days after seeding, unless indicated otherwise on the Drawings.
B. Where established, growth is defined as at least one (1) plant per square foot.

3.07 Watering

A. Sod shall be thoroughly watered immediately after planting and subsequently at such intervals to promote growth or as directed by the Owner.
1. 0 to 21 days
a. Every two days with a minimum of 1/2 inch (1/2") water, unless a comparable amount of rain has occurred.
2. 22 to 42 days
a. Twice a week with a minimum of 1/2 inch (1/2") water, unless a comparable amount of rain has occurred.
3. Water shall be applied in late afternoon or at night to enable absorption of the water with minimum evaporation.
4. During drought conditions, contact the Owner on any special requirements or provisions.

B. The Contractor shall furnish and operate equipment to distribute water at a uniform and controllable rate.
C. Ensure that watering does not erode soil or plantings.

3.08 Fertilizer

A. Fertilizing and seeding shall be done concurrently.
B. Fertilizer shall be applied uniformly over the area and in a manner in accordance with the manufacturers' recommendations or as directed by the Owner.
C. Shall be dry and in good physical condition with any fertilizer being in powder or cake form being rejected.
D. Fertilizer shall be uniformly applied at a rate of 400 lb/acre, after tilling.
E. If seeds and fertilizer are distributed in a water slurry.
F. The mixture shall be applied to the area to be seeded within thirty (30) minutes after all the components have come into contact.

3.09 Mowing and Maintenance

A. Mow at intervals to keep the grass height from exceeding 3-1/2 inches (3-1/2").
B. Mower shall be set at a minimum height of 2-1/2 inches (2-1/2") or at a height that will not remove more than one-half of the grass leaf surface.
C. Mow areas when dry and not in a saturated or soft condition.
D. Treat areas of heavy weed and insect infestation as recommended by treatment manufacturer.
E. Restrict all vehicular and pedestrian traffic from area(s) until sod is established or for minimum 30 days during growing season.
F. Maintain area(s) for a minimum of ninety (90) days, or as required to establish an acceptable lawn.
1. For area(s) seeded in the fall, continue maintenance the following spring until an acceptable lawn is established.

SECTION 33 05 10

EXCAVATION AND BACKFILL FOR UTILITIES

PART 1 - GENERAL

1.01 Description

A. This specification shall govern all work required for the excavation and backfill of water utilities, wastewater utilities, and storm drainage utilities, as required to complete the project.

1.02 Related Sections

A. 03 31 11.13 CONCRETE STRUCTURES
B. 31 23 16.13 TRENCHING
C. 31 24 13.10 EMBANKMENT
D. 33 05 07 TRENCHLESS UTILITY INSTALLATION
E. 33 14 13 WATER UTILITY DISTRIBUTION PIPING
F. 33 31 13.13 WASTEWATER UTILITY PIPING

1.03 References *The latest edition of the referenced item below shall be used and obtained by the Contractor*

A. ASTM C 150 – Specification for Portland Cement
B. ASTM D 558 – Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures
C. ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3))
D. ASTM D 2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
E. ASTM D 2922 – Standard Test Methods for Density of Soil and Soil-Aggregate in Place By Nuclear Methods (Shallow Depth)
F. Part 1926, Subpart P – Excavations, Trenching, and Shoring of the Occupational Safety and Health Administration (OSHA) Standards and Interpretations
G. Texas Code Chapter 756 Subchapter C – Trench Safety
H. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 421, Hydraulic Cement Concrete
I. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS–4610, Fly Ash
J. Texas Department of Transportation (TxDOT) Test Procedure Tex-106-E

1.04 Definitions *The words defined in this section shall for the purpose of the specification have the meanings ascribed to them.*

A. Final Backfill – Material located from the top of the Initial Backfill to a specified height and is horizontal from trench sidewall to opposite trench sidewall
B. Pipe Bedding – Material located from the top of the foundation to the bottom level line of the pipe and is horizontal from trench sidewall to opposite trench sidewall.
C. Initial Backfill – Material placed from the Pipe Bedding up to a determined level line above the top of pipe and is horizontal from trench sidewall to opposite trench sidewall.
D. Pipe Embedment – Backfill Material consisting of Pipe Bedding and Initial Backfill.
E. Pipe Foundation – Material located at the bottom of the trench and is horizontal from trench sidewall to opposite trench sidewall.

PART 2 - PRODUCTS

2.01 Class I Backfill Materials

A. Material shall be well-graded gravels, sands, gravel-sand mixture, with all meet the following requirements:
    1. Meet the requirements of ASTM D2487 for: GW, SW.
    2. Gradation
        a. GW
            1) D_{60} / D_{10} – greater than four-percent (4%)
            2) 1-1/2" (37.5 mm) Sieve – one-hundred percent 100% passing
            3) No. 4 (4.75 mm) Sieve – less than 50% of coarse fraction passing
            4) No. 200 (0.075 mm) Sieve – less than or equal to five-percent (5%) passing

b. SW
1) D_{60} / D_{10} – greater than six-percent (6%)
2) 1-1/2" (37.5 mm) Sieve – one-hundred percent 100% passing
3) No. 4 (4.75 mm) Sieve – more than 50% of coarse fraction passing
4) No. 200 (0.075 mm) Sieve – less than or equal to five-percent (5%) passing

3. Plasticity Index
a. GW
1) Non-plastic
b. SW
1) Non-plastic

2.02 Class II Backfill Materials

A. Material shall meet the following requirements:
1. Meet the requirements of ASTM D2487 for: GM, GP, SM, SP, SP-SM, SW-SM, GP-GM, GW-GM.
2. Gradation
a. GP
1) No. 4 (4.75 mm) Sieve – minimum 30% passing
2) No. 200 (0.075 mm) Sieve – less than five-percent (5%) passing
b. SP
1) No. 4 (4.75 mm) Sieve – minimum 30% passing
2) No. 200 (0.075 mm) Sieve – less than five-percent (5%) passing
c. GP-GM, GW-GM, SP-SM, SW-SM
1) No. 4 (4.75 mm) Sieve – minimum 30% passing
2) No. 200 (0.075 mm) Sieve – between five-percent (5%) and twelve-percent (12%) passing
3. Plasticity Index
a. GP
1) Non-plastic to 4
b. SP
1) Non-plastic to 4
c. GP-GM, GW-GM, SP-SM, SW-SM
1) Non-plastic to 4

2.03 Coarse Aggregate Backfill Material

A. Material shall be in accordance with TxDOT Item 421, Aggregate Grade 4 or 5.

2.04 Crushed Stone Backfill Material

A. Material shall be in accordance with TxDOT Item 421, Aggregate Grade 2, 3, or 4.

2.05 Flowable Fill Backfill Material

A. Cement
1. Shall be Cement Portland cement in accordance with ASTM C 150, Type I.
B. Fly Ash
1. Fly ash shall conform to the requirements of TxDOT DMS-4610.
C. Filler Aggregate
1. Shall consist of sand, stone screenings, other granular material that is compatible with the other components.
2. Shall be fine enough to stay in suspension to the extent required for proper flow without segregation and for minimal settlement.
3. Shall have a Plasticity Index (TxDOT Test Method Tex-106-E) less than 15 and shall conform to the following gradation:
a. Percent passing Sieve No. 200 shall be 0% – 10%
D. Mixing Water
1. Shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES.
E. Additives
1. Darafill® or approved other.
F. Strength
1. Shall be 100 – 300 psi minimum compressive strength at 28 days

2.06 Select Backfill Material

A. Shall be native on-site material from excavation, imported material, or a mixture of sand and clay or

other suitable granular material free from vegetation, rocks, debris, and material that is in large clumps greater than two-inches (2") meeting the following requirements:

1. Liquid limit of thirty-five (35) maximum,
2. Plasticity index range from eight (8) to twenty (20),
3. Moisture range from -1% to 3%.

B. This material shall not include soils with a Unified Soil Classification System of OL, MH, OH, CH, and PT or soils with an AASHTO classification of A7.

2.07 Sand Backfill Material

A. Sand
   1. Gradation shall be as follows:
      a. Percent passing #4 sieve – 55 – 100
      b. Percent passing #10 sieve – 40 – 100
      c. Percent passing #40 sieve – 25 – 100
      d. Percent passing #200 sieve – 10 – 20
      e. Plasticity Index – Non-plastic to 4

2.08 Cement Stabilized Sand Backfill Material

A. Shall be a mixture of cement-stabilized sand containing a minimum of two (2) sacks of standard Type I Portland cement per cubic yard of sand.
B. Sand
   1. Gradation shall be as follows:
      a. Percent passing #4 sieve – 55 - 100
      b. Percent passing #10 sieve – 40 - 100
      c. Percent passing #40 sieve – 25 - 100
      d. Percent passing #200 sieve – 10 - 20
      e. Plasticity Index – NP – 10

2.09 Native Backfill Material

A. Suitable material chosen from on-site excavation or imported may be used.
   1. This material will be subject to approval by the Owner.
B. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction.
C. This material will be subject to approval by the Owner.
D. Material shall be free of vegetation or other extraneous material.

2.10 Topsoil Backfill Material

A. Suitable material chosen from on-site excavation or imported may be used.
   1. This material will be subject to approval by the Owner.
B. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction.
C. Material shall be free of vegetation or other extraneous material.
D. Should be stockpiled separately and used for finish grading.
E. Capable of supporting a good growth of grass when fertilized and seeded or sodded.

2.11 Other Backfill Materials

A. Other material of comparable featured and equal quality may be substituted for the above items with approval of the Owner.

PART 3 - EXECUTION

3.01 General Information

A. All Work shall be in accordance with the Contract, Specifications, Drawings, manufacturer recommendations, and industry standards.
   1. In the event that a requirement conflicts with another, the more stringent requirement shall be followed, unless directed otherwise by the Owner.
B. All surplus materials shall become the Contractors and disposal shall be in accordance with local, state, and federal regulations and will be the responsibility of the Contractor, unless otherwise noted on the Drawings or directed by the Owner.
C. All damages by excavating, either to surface or subsurface structures, shall be repaired or replaced by the

Constructor at his own cost and expense to the requirements of the damaged items owner.

3.02 Safety Requirements

A. It is the responsibility of the Contractor to adhere to all safety procedures and requirements of local, state, and federal regulations.

B. If at any time a trench shall be required to perform the work then the requirements of Section 31 23 16.13 TRENCHING shall be required.

C. Any excavation that remains open after working hours shall be covered with a steel plate of sufficient thickness to support traffic.

3.03 Excavation

A. General

1. Trenching
    a. Excavation shall be constructed in open cut trenches with vertical sides in accordance with Section 31 23 16.13 TRENCHING.
    b. The Contractor shall pile excavated material in a manner that will not endanger the work and will avoid obstructing sidewalks, driveways, power pole, drainage, streets, etc.
    c. The Contractor shall not have more the 200 feet of open trench left behind the trenching operation and no more than 500 feet of ditch behind the ditching machine that is not compacted as required by the Drawings and specification.
        1) No trench or excavation shall remain open after working hours, without prior authorization from the Owner.
    d. If, for whatever reason, the trench width at the top of pipe must exceed that width indicated in the bedding details, the Contractor shall modify bedding as required by the Owner to accommodate the additional load on the pipe.
        1) Excavation width shall not exceed the right-of-way width, easement width, or as indicated on the Drawings or by Owner.
    e. If quicksand, muck, or similar unstable material develop or is encountered during the excavation, the following procedure shall be used unless other methods are called for on the Drawings.
        1) If the unstable condition is a result of ground water, the Contractor, prior to additional excavation shall control it.
        2) After stable conditions have been achieved, unstable soil shall be removed or stabilized to a depth of:
            a) Two-feet (2') below the bottom of pipe for pipes two-feet (2') or more in height.
            b) To a depth equal to the height of pipe, twelve-inches (12") minimum, for pipe less than two-feet (2') in height.
            c) Such excavation shall be carried at least one-foot (1') beyond the horizontal limits of the structure on all sides.
        3) All unstable soil removed shall be replaced with Coarse Aggregate Backfill Material, or approved suitable stable material, placed in uniform layers of suitable depth as directed by the Owner, and each layer shall be wetted, if necessary, and compacted by mechanical tamping as required to provide a stable condition.
        4) For unstable trench conditions requiring outside forms, seals, sheathing, and bracing, any additional excavation and backfill required shall be done at the Contractor's expense.
            a) The limit of excavation may be modified to allow for placing and removing forms, installing sheeting, shoring, bracing, etc.
2. Trenchless
    a. Shall be done in accordance with Section 33 05 07 TRENCHLESS UTILITY INSTALLATION
3. For all utilities to be constructed in fill above natural ground, the embankment shall first be constructed to an elevation not less than one-foot (1') above the top of the pipe or conduit in accordance with Section 31 24 13.10 EMBANKMENT, after which excavation for the pipe or conduit shall be made.

B. Pipes

1. General
    a. The limit of excavation shall allow for all work to be performed in a safe manner, for placing and removing forms, installing sheeting, shoring, bracing, etc.

b. Trenches shall have a maximum width as required to one-foot (1') above the outside surface of the pipe and parallel thereto on each side unless otherwise specified on the Drawings or by the Owner.

2. Vertical Side
   a. The limit shall not exceed three-feet (3') outside the Pipe Embedment on a vertical plane parallel to the Pipe Embedment except where specifically approved otherwise by the Owner.
   b. The Contractor shall provide and install any sheeting, shoring, and bracing as necessary to provide a safe work area as required to protect workmen, structures, equipment, other improvements and utilities, etc.
   c. The Contractor shall be solely responsible for all trench protection.
   d. The sheeting, shoring, and bracing shall be removed, as the excavation is backfilled in a safe manner.
3. Sloping Sides
   a. In unimproved areas, where sufficient space is available, the Contractor shall be allowed to back slope the sides of the excavation as long as it is completed in a safe manner in accordance with all Local, State, and Federal regulations.
      1) Backfill material will be required to be in accordance with the backfill for the pipe installed.
4. Unauthorized Over Excavation
   a. In the event the excavation is carried on below the indicated elevation, the Contractor at his expense shall bring the grade back to requirements by filling with Pipe Embedment Backfill material as required, unless otherwise noted on the Drawings or directed by the Owner.

C. Manholes and Inlets
1. General
   a. The limit of excavation shall allow for all work to be performed in a safe manner, for placing and removing forms, installing sheeting, shoring, bracing, etc.
2. Vertical Side
   a. The limit shall not exceed three-feet (3') outside the footing on a vertical plane parallel to the footing except where specifically approved otherwise by the Owner.
   b. The Contractor shall provide and install any sheeting, shoring, and bracing as necessary to provide a safe work area as required to protect workmen, structures, equipment, other improvements and utilities, etc.
   c. The Contractor shall be solely responsible for all trench protection.
   d. The sheeting, shoring, and bracing shall be removed, as the excavation is backfilled in a safe manner.
3. Sloping Sides
   a. In unimproved areas, where sufficient space is available, the Contractor shall be allowed to back slope the sides of the excavation as long as it is completed in a safe manner in accordance with all Local, State, and Federal regulations.
      1) Backfill material will be required to be in accordance with the backfill for the pipe installed.
4. Unauthorized Over Excavation
   a. Excavation for slabs, footings, etc., that rest on earth, shall not be carried below the elevation shown on the Drawings.
      1) In the event the excavation is carried on below the indicated elevation, the Contractor at his expense shall bring the slab, footing, etc., to the required grade by filling with concrete with a minimum compressive strength of 4,000 psi, unless otherwise noted on the Drawings or directed by the Owner.

D. Shaping of Trench Bottom
1. The trench bottom shall be undercut a minimum depth sufficient to accommodate the class of bedding indicated in the Drawings and Specifications.

E. De-watering
1. The Contractor shall keep the excavation free from water by use of cofferdams, bailing, pumping well pointing, or any combination as the particular situation may warrant.
   a. Removal of well-points shall be at rate of 1/3 per 24 hours (every third well-point).

2. All de-watering devices shall be installed in such a manner as to provide clearance for construction, removal of forms, and inspection of exterior of formwork.
3. It is the intent of these specifications that the foundation be placed on a firm dry bed.
4. The foundation bed shall be kept in a de-watered condition for a sufficient period of time to insure the safety of the structure, but in no case shall de-watering be terminated sooner than seven (7) days after placing concrete.
5. All de-watering methods and procedures are subject to the approval of the Owner.
6. The excavation shall be inspected and approved by the Owner before work on the structure is started.
7. The Contractor shall provide a relatively smooth, firm foundation bed for footings and slabs that bear directly on the undisturbed earth without additional cost to the Owner, regardless of the soil conditions encountered.
    a. The Owner will be the sole judge as to whether these conditions have been met.

F. Excavation in Streets
1. Excavation in streets, together with the maintenance of traffic where specified, and the restoration of the pavement riding surface shall be in accordance with Drawing detail, or as required by other applicable specifications.

G. Removing Abandoned Structures
1. When abandoned masonry structures or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth of one foot (1') below the bottom of the trench.
2. When abandoned inlets or manholes are encountered and no Drawing provision is made for adjustment or connection to the new utility, such manholes and inlets shall be removed completely to a depth one-foot (1') below the bottom of the trench.
3. In each instance, the bottom to the trench shall be restored to grade by backfilling and compacting by the methods provided hereinafter for backfill.
4. Where the trench cuts through utility lines which are known to be abandoned, these sewers shall be cut flush with sides of the trench and blocked with a concrete plug in a manner satisfactory to the Owner.

H. Protection of Utilities
1. The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the Contractor may proceed with his work with a minimum of delay.
2. The Contractor shall conduct his work such that a reasonable minimum of disturbance to existing utilities will result.
3. If a utility is damaged it shall be restored promptly by the Contractor at his expense in accordance with the utility owners requirements.
4. The Contractor shall not hold the Owner liable for any expense due to delay or additional work because of utility adjustments or conflicts.

I. Excess Excavated Material
1. All materials from excavation not required for backfilling the trench shall be removed, by the Contractor, from the job site promptly following the completion of work involved, or incorporated into the project.

3.04 Water Utilities Backfill

A. Main Piping and Accessories
1. Pipe Foundation
    a. Shall be firm and undisturbed native material, or as required by the Drawings or Owner.
    b. If disturbed it shall be compacted to same density as the native surrounding material.
2. Pipe Embedment Backfill
    a. General
        1) All pipe and fittings that are not enclosed in concrete valve boxes, laid in encasement pipe, shall be completely embedded as specified.
            a) This embedment includes the bottom, sides and top of pipe and fittings including bells, so that all portions will be encased to insulate the pipe from the natural ground and from the backfill.

2) All trenches and excavation shall be backfilled as soon as is practical after the pipes and accessories are properly placed.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
4) Flooding or jetting of backfill is not allowed.
5) Care shall be taken to not damage the tracer wire or cause wire to come off of pipe.

b. Pipes 6" to 14"
1) Material
a) Shall be Sand Backfill Material, or as required by the Drawings or Owner.
2) Pipe Bedding
a) Eight-inches (8") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.
b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of twelve-inches (12") of embedment material between the excavation sides and the pipe.
3) Initial Backfill
a) Twelve-inches (12") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

c. Pipes 16" and Larger
1) Material
a) Shall be Sand Backfill Material, or as required by the Drawings or Owner.
2) Pipe Bedding
a) Twelve-inches (12") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.
b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of twelve-inches (12") of embedment material between the excavation sides and the pipe.
3) Initial Backfill
a) Twelve-inches (12") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

d. Placement
1) Shall be placed in a manner as to not damage any utility or improvements.
2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

e. Compaction
1) General
a) Shall be compacted in a manner as to not damage any utility or improvements.
2) Sand Backfill Material
a) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

3. Warning Tape
a. Shall be placed as required in Section 33 14 13 WATER UTILITY DISTRIBUTION PIPING

4. Final Backfill
a. General
1) All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
2) The placing of the material shall be done in such a manner so as to be free of all foreign matter.
3) Flooding or jetting of backfill is not allowed.

b. Material
1) Paved Areas
a) Top of Pipe Embedment Material to the bottom of road subgrade material

(1) Select Backfill Material, or as required by the Drawings or Owner.

2) Non-Paved Areas
   a) Top of Pipe Embedment Material to six-inches (6") below finished grade
      (1) Native Backfill Material, or as required by the Drawings or Owner.
   b) Top six-inches (6")
      (1) Topsoil Backfill Material, or as required by the Drawings or Owner.

c. Placement
   1) Shall be placed in a manner as to not damage any utility or improvements.
   2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
   3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

d. Compaction
   1) General
      a) Shall be compacted in a manner as to not damage any utility or improvements.
   2) Select Backfill Material
      a) Compacted by use of industry standard equipment at zero to five-percent (0-5%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698, or as required by the Drawings or Owner.
   3) Native Backfill Material
      a) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
   4) Topsoil Backfill Material
      a) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
      b) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.

5. Utility Crossings
   a. Outside of the pipes are within two-feet (2') of each other
      1) Material
         a) Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
      2) Encasement Requirement
         a) Below Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         b) Sides of Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         c) Above Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         d) Distance beyond crossing
            (1) Three-feet (3') or as required by the Drawings, owner of utility(ies), or Owner.
      3) Placement
         a) Shall be placed in a manner as to not damage any utility or improvements.
         b) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
         c) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
      4) Compaction
         a) Shall be compacted in a manner as to not damage any utility or improvements.
         b) Material shall be placed and be compacted under, around the side, and over the utility(ies) in a manner that will reduce damage and settlement to a minimum or as approved by the Owner.

c) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

b. Outside of the pipes are beyond two-feet (2') of each other
   1) Shall be as required for Main Piping and Accessories, or as required by the Drawings, owner of utility(ies), or Owner.

6. Compaction Testing
   a. Frequency of tests shall not be less than one (1) for any pipe section between main line valves and every one-hundred linear feet (100') of main pipe per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of pipe, in accordance with ASTM D 2922.
   b. Failure
      1) If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

B. Service Lines
   1. Pipe Foundation
      a. Shall be firm and undisturbed native material, or as required by the Drawings or Owner.
      b. If disturbed it shall be compacted to same density as the native surrounding material.
   2. Pipe Embedment Backfill
      a. General
         1) All pipe and fittings that are not laid in encasement pipe, shall be completely embedded as specified.
            a) This embedment includes the bottom, sides and top of pipe and fittings including bells, so that all portions will be encased to insulate the pipe from the natural ground and from the backfill.
         2) All trenches and excavation shall be backfilled as soon as is practical after the pipes and accessories are properly placed.
         3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
         4) Flooding or jetting of backfill is not allowed.
      b. Pipes up to 2"
         1) Material
            a) Shall be Select Backfill Material, or as required by the Drawings or Owner.
         2) Pipe Bedding
            a) Six-inches (6") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.
            b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of six-inches (6") of embedment material between the excavation sides and the pipe.
         3) Initial Backfill
            a) Six-inches (6") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.
      c. Pipes Larger Than 2"
            a) Shall be considered Main Piping and be in accordance with Section A of the Water Utilities Backfill in this specification.
      d. Placement
         1) Shall be placed in a manner as to not damage any utility or improvements.
         2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
         3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
      e. Compaction

1) General
    a) Shall be compacted in a manner as to not damage any utility or improvements.
2) Sand Backfill Material
    a) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

3. Final Backfill
    a. General
        1) All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
        2) The placing of the material shall be done in such a manner so as to be free of all foreign matter.
        3) Flooding or jetting of backfill is not allowed.
    b. Material
        1) Shall be Native Backfill Material, or as required by the Drawings or Owner.
    c. Placement
        1) Shall be placed in a manner as to not damage any utility or improvements.
        2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
        3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
    d. Compaction
        1) General
            a) Shall be compacted in a manner as to not damage any utility or improvements.
        2) Native Backfill Material
            a) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
        3) Topsoil Backfill Material
            a) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
            b) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.
4. Compaction Testing
    a. Are to be tested at a rate of one (1) for every six (6) services staggered or every three-hundred linear feet (300') of water service installed.

3.05 Wastewater Utilities Backfill

A. Main Piping and Accessories
    1. Pipe Foundation
        a. Shall be firm and undisturbed native material, or as required by the Drawings or Owner.
        b. If disturbed it shall be compacted to same density as the native surrounding material.
    2. Pipe Embedment Backfill
        a. General
            1) All pipe and fittings that are not laid in encasement pipe, shall be completely embedded as specified.
                a) This embedment includes the bottom, sides and top of pipe and fittings including bells, so that all portions will be encased to insulate the pipe from the natural ground and from the backfill.
            2) All trenches and excavation shall be backfilled as soon as is practical after the pipes and accessories are properly placed.
            3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
            4) Flooding or jetting of backfill is not allowed.
        b. Pipes 6" to 14"
            1) Material
                a) Excavation less than twenty-feet (<20') in depth and above groundwater table:

(1) Shall be Class I Backfill Material, Class II Backfill Material, Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.

b) Excavation greater than twenty-feet (>20') in depth and below groundwater table:

(1) Shall be Coarse Aggregate Backfill Material, or as required by the Drawings or Owner.

2) Pipe Bedding

a) Six-inches (6") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.

b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of twelve-inches (12") of embedment material between the excavation sides and the pipe.

3) Initial Backfill

a) Twelve-inches (12") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

c. Pipes 16" and Larger

1) Material

a) Excavation less than twenty-feet (<20') in depth and above groundwater table:

(1) Shall be Class I Backfill Material, Class II Backfill Material, Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.

b) Excavation greater than twenty-feet (>20') in depth and below groundwater table:

(1) Shall be Coarse Aggregate Backfill Material, or as required by the Drawings or Owner.

2) Pipe Bedding

a) Twelve-inches (12") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.

b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of twelve-inches (12") of embedment material between the excavation sides and the pipe.

3) Initial Backfill

a) Twelve-inches (12") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

d. Placement

1) Shall be placed in a manner as to not damage any utility or improvements.

2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.

3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

e. Compaction

1) General

a) Shall be compacted in a manner as to not damage any utility or improvements.

2) Class I Backfill Material

a) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

3) Class II Backfill Material

a) Hand tamp with tamping plate or other approved method at three-percent (3%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698 without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

4) Cement Stabilized Sand Backfill Material

a) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

5) Coarse Aggregate Backfill Material
   a) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

3. Warning Tape
   a. Ductile Iron Pipe
      1) Shall be placed as required in Section 33 14 13 WATER UTILITY DISTRIBUTION PIPING
   b. Plastic Pipe
      1) Shall be placed as required in Section 33 31 13.13 WASTEWATER UTILITY PIPING
4. Final Backfill
   a. General
      1) All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
      2) The placing of the material shall be done in such a manner so as to be free of all foreign matter.
      3) Flooding or jetting of backfill is not allowed.
   b. Material
      1) Paved Areas
         a) Top of Embedment Material to three-feet (3') below the bottom of road subgrade material
            (1) Select Backfill Material, or as required by the Drawings or Owner.
         b) Three-feet (3') below the bottom of road base material to the bottom of the road subgrade material
            (1) Cement Stabilized Sand Backfill Material.
      2) Non-Paved Areas
         a) Top of Embedment Material to six-inches (6") below finished grade
            (1) Native Backfill Material, or as required by the Drawings or Owner.
         b) Top six-inches (6")
            (1) Topsoil Backfill Material, or as required by the Drawings or Owner.
   c. Placement
      1) Shall be placed in a manner as to not damage any utility or improvements.
      2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
      3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
   d. Compaction
      1) General
         a) Shall be compacted in a manner as to not damage any utility or improvements.
      2) Select Backfill Material
         a) Compacted by use of industry standard equipment at zero to five-percent (0-5%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698, or as required by the Drawings or Owner.
      3) Cement Stabilized Sand Backfill Material
         a) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
      4) Native Backfill Material
         a) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
      5) Topsoil Backfill Material
         a) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
         b) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.

5. Utility Crossings
    a. Outside of the pipes are within two-feet (2') of each other
        1) Material
            a) Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
        2) Encasement Requirement
            a) Below Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            b) Sides of Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            c) Above Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            d) Distance beyond crossing
                (1) Three-feet (3') or as required by the Drawings, owner of utility(ies), or Owner.
        3) Placement
            a) Shall be placed in a manner as to not damage any utility.
            b) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
            c) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
        4) Compaction
            a) Shall be compacted in a manner as to not damage any utility.
            b) Material shall be placed and be compacted under, around the side, and over the utility(ies) in a manner that will reduce damage and settlement to a minimum or as approved by the Owner.
            c) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
    b. Outside of the pipes are beyond two-feet (2') of each other
        1) Shall be as required for Main Piping and Accessories, or as required by the Drawings, owner of utility(ies), or Owner.
6. Compaction Testing
    a. Frequency of tests shall not be less than one (1) for any pipe section between manholes and every one-hundred linear feet (100') of main pipe per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of pipe, in accordance with ASTM D 2922.
    b. Failure
        1) If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

B. Service Lines
1. Pipe Foundation
    a. Shall be firm and undisturbed native material, or as required by the Drawings or Owner.
    b. If disturbed it shall be compacted to same density as the native surrounding material.
2. Pipe Embedment Backfill
    a. General
        1) All pipe and fittings that are not laid in encasement pipe, shall be completely embedded as specified.
            a) This embedment includes the bottom, sides and top of pipe and fittings including bells, so that all portions will be encased to insulate the pipe from the natural ground and from the backfill.

2) All trenches and excavation shall be backfilled as soon as is practical after the pipes and accessories are properly placed.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
4) Flooding or jetting of backfill is not allowed.

b. Pipes 4" to 6"
1) Material
a) Excavation less than twenty-feet (<20') in depth and above groundwater table:
(1) Shall be Sand Backfill Material, or as required by the Drawings or Owner.
b) Excavation greater than twenty-feet (>20') in depth and below groundwater table:
(1) Shall be Coarse Aggregate Backfill Material, or as required by the Drawings or Owner.
2) Pipe Bedding
a) Six-inches (6") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.
b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of six-inches (6") of embedment material between the excavation sides and the pipe.
3) Initial Backfill
a) Six-inches (6") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

c. Pipes Larger Than 6"
a) Shall be considered Main Piping and be in accordance with Section A of the Wastewater Utilities Backfill in this specification.

d. Placement
1) Shall be placed in a manner as to not damage any utility or improvements.
2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

e. Compaction
1) General
a) Shall be compacted in a manner as to not damage any utility or improvements.
2) Sand Backfill Material
a) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
3) Coarse Aggregate Backfill Material
a) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

3. Final Backfill
a. General
1) All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
2) The placing of the material shall be done in such a manner so as to be free of all foreign matter.
3) Flooding or jetting of backfill is not allowed.

b. Material
1) Shall be Native Backfill Material, or as required by the Drawings or Owner.

c. Placement
1) Shall be placed in a manner as to not damage any utility.
2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

d. Compaction
    1) General
        a) Shall be compacted in a manner as to not damage any utility.
    2) Native Backfill Material
        a) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.

4. Utility Crossings
    a. Outside of the pipes are within two-feet (2') of each other
        1) Material
            a) Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
        2) Encasement Requirement
            a) Below Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            b) Sides of Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            c) Above Pipe
                (1) As required in previous parts of this section, or as required by the Drawings or Owner.
            d) Distance beyond crossing
                (1) Three-feet (3') or as required by the Drawings, owner of utility(ies), or Owner.
        3) Placement
            a) Shall be placed in a manner as to not damage any utility or improvements.
            b) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
            c) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
        4) Compaction
            a) Shall be compacted in a manner as to not damage any utility or improvements.
            b) Material shall be placed and be compacted under, around the side, and over the utility(ies) in a manner that will reduce damage and settlement to a minimum or as approved by the Owner.
            c) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
    b. Outside of the pipes are beyond two-feet (2') of each other
        1) Shall be as required for Main Piping and Accessories, or as required by the Drawings, owner of utility(ies), or Owner.
5. Compaction Testing
6. Are to be tested at a rate of one (1) for every six (6) services staggered or every three-hundred linear feet (300') of wastewater service installed in accordance with ASTM D 2922.

C. Manhole
    A. Schedule of Backfilling
        1. Backfilling around the manholes shall commence as soon as concrete or masonry has been allowed to cure the required time and forms and shoring have been removed.
    B. Subgrade
        1. Shall be undisturbed native material, or as required by the Drawings or Owner.
        2. Compact top six-inches (6") to 95% Standard Proctor Density.
    C. Bedding
        1. General
            a. The placing of the backfill material shall be done in such a manner so as to be free of all natural soil or other foreign matter and prevent damage to any other work.

2. Material
   a. Crushed Stone Backfill Material, or as required by the Drawings or Owner.
3. Requirement
   a. Below Foundation
      (1) Eight-inches (8") , or as required by the Drawings or Owner
   b. Width
      (1) Foundation width plus two-feet (2') or to edge of excavation whichever is greater.
4. Placement
   a. Compact to form a stable surface to place foundation upon, or as required by the Drawings or Owner.

D. Initial Backfill
1. General
   a. The placing of the material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter and prevent damage to any other work.
2. Material
   a. Excavation less than twenty-feet (<20') in depth and above groundwater table:
      (1) Shall be Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
   b. Excavation greater than twenty-feet (>20') in depth and below groundwater table:
      (1) Shall be Flowable Fill Backfill Material, or as required by the Drawings or Owner.
      (2) Allow to cure prior to placement of Final Backfill
3. Requirement
   a. Above Bedding
      (1) Five-feet (5'), or as required by the Drawings or Owner
   b. Width
      (1) To extent of excavation.
4. Placement
   a. Shall be placed in a manner as to not damage any utility.
   b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
   c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
5. Compaction
   a. General
      (1) Shall be compacted in a manner as to not damage any utility.
   b. Crushed Stone Backfill Material
      (1) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

E. Final Backfill
1. General
   a. All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
   b. The placing of the material shall be done in such a manner so as to be free of all foreign matter.
   c. Flooding or jetting of backfill is not allowed.
2. Material
   a. Paved Areas
      (1) Top of Initial Backfill to the bottom of road subgrade material
         (a) Cement Stabilized Backfill Material, or as required by the Drawings or Owner.
   b. Non-Paved Areas
      (1) Top of Embedment Material to six-inches (6") below finished grade
         (a) Select Backfill Material, or as required by the Drawings or Owner.
      (2) Top six-inches (6")
         (a) Topsoil Backfill Material, or as required by the Drawings or Owner.
3. Placement

a. Shall be placed in a manner as to not damage any utility or improvements.
b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

4. Compaction
   a. General
      (1) Shall be compacted in a manner as to not damage any utility or improvements.
   b. Select Backfill Material
      (1) Compacted by use of industry standard equipment at zero to five-percent (0-5%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698, or as required by the Drawings or Owner.
   c. Cement Stabilized Sand Backfill Material
      (1) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
   d. Topsoil Backfill Material
      (1) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
      (2) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.

F. Compaction Testing
   1. Frequency of tests shall not be less than one (1) per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of Initial Backfill, in accordance with ASTM D 2922.
   2. Failure
      a. If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

3.06 Storm Water Utilities Backfill

A. Main Piping and Accessories
   1. Pipe Foundation
      a. Shall be firm and undisturbed native material, or as required by the Drawings or Owner..
      b. If disturbed it shall be compacted to same density as the native surrounding material.
   2. Pipe Embedment Backfill
      a. General
         1) All pipe and fittings that are not laid in encasement pipe, shall be completely embedded as specified.
            a) This embedment includes the bottom, sides and top of pipe and fittings including bells, so that all portions will be encased to insulate the pipe from the natural ground and from the backfill.
         2) All trenches and excavation shall be backfilled as soon as is practical after the pipes and accessories are properly placed.
         3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
         4) Flooding or jetting of backfill is not allowed.
      b. All Pipes
         1) Material
            a) Excavation less than twenty-feet (<20') in depth and above groundwater table:
               (1) Shall be Class I Backfill Material, Class II Backfill Material, Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
            b) Excavation greater than twenty-feet (>20') in depth and below groundwater table:
               (1) Shall be Coarse Aggregate Backfill Material, or as required by the Drawings or Owner.

2) Pipe Bedding
   a) Six-inches (6") below the bottom of pipe and the total width of the trench, or as required by the Drawings or Owner.
   b) In order to reduce the amount of material required, the trench bottom may be excavated in a rounded manner so as to maintain at least a minimum of twelve-inches (12") of embedment material between the excavation sides and the pipe.
3) Initial Backfill
   a) Twelve-inches (12") above the top of pipe and the total width of the trench, or as required by the Drawings or Owner.

c. Placement
1) Shall be placed in a manner as to not damage any utility or improvements.
2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

d. Compaction
1) General
   a) Shall be compacted in a manner as to not damage any utility or improvements.
2) Class I Backfill Material
   a) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
3) Class II Backfill Material
   a) Hand tamp with tamping plate or other approved method at three-percent (3%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698 without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
4) Cement Stabilized Sand Backfill Material
   a) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
5) Coarse Aggregate Backfill Material
   a) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

3. Final Backfill
a. General
1) All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
2) The placing of the material shall be done in such a manner so as to be free of all foreign matter.
3) Flooding or jetting of backfill is not allowed.

b. Material
1) Paved Areas
   a) Top of Embedment Material to three-feet (3') below the bottom of road subgrade material
      (1) Select Backfill Material, or as required by the Drawings or Owner.
   b) Three-feet (3') below the bottom of road base material to the bottom of the road subgrade material
      (1) Cement Stabilized Sand Backfill Material.
2) Non-Paved Areas
   a) Top of Embedment Material to six-inches (6") below finished grade
      (1) Native Backfill Material, or as required by the Drawings or Owner.
   b) Top six-inches (6")

(1) Topsoil Backfill Material, or as required by the Drawings or Owner.

c. Placement
   1) Shall be placed in a manner as to not damage any utility or improvements.
   2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
   3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

d. Compaction
   1) General
      a) Shall be compacted in a manner as to not damage any utility or improvements.
   2) Select Backfill Material
      a) Compacted by use of industry standard equipment at zero to five-percent (0-5%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698, or as required by the Drawings or Owner.
   3) Cement Stabilized Sand Backfill Material
      a) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
   4) Native Backfill Material
      a) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
   5) Topsoil Backfill Material
      a) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
      b) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.

4. Utility Crossings
   a. Outside of the pipes are within two-feet (2') of each other
      1) Material
         a) Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
      2) Encasement Requirement
         a) Below Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         b) Sides of Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         c) Above Pipe
            (1) As required in previous parts of this section, or as required by the Drawings or Owner.
         d) Distance beyond crossing
            (1) Three-feet (3') or as required by the Drawings, owner of utility(ies), or Owner.
      3) Placement
         a) Shall be placed in a manner as to not damage any utility or improvements.
         b) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
         c) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
      4) Compaction
         a) Shall be compacted in a manner as to not damage any utility or improvements.
         b) Material shall be placed and be compacted under, around the side, and over the utility(ies) in a manner that will reduce damage and settlement to a minimum or as approved by the Owner.

c) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

b. Outside of the pipes are beyond two-feet (2') of each other
   1) Shall be as required for Main Piping and Accessories, or as required by the Drawings, owner of utility(ies), or Owner.

5. Compaction Testing
   a. Frequency of tests shall not be less than one (1) for any pipe section between manholes, junction boxes, inlets, and every one-hundred linear feet (100') of main pipe per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of pipe, in accordance with ASTM D 2922.
   b. Failure
      1) If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

B. Manhole

A. Schedule of Backfilling
   1. Backfilling around the manholes shall commence as soon as concrete or masonry has been allowed to cure the required time and forms and shoring have been removed.

B. Subgrade
   1. Shall be undisturbed native material, or as required by the Drawings or Owner.
   2. Compact top six-inches (6") to 95% Standard Proctor Density.

C. Bedding
   1. General
      a. The placing of the backfill material shall be done in such a manner so as to be free of all natural soil or other foreign matter and prevent damage to any other work.
   2. Material
      a. Crushed Stone Backfill Material, or as required by the Drawings or Owner.
   3. Requirement
      a. Below Foundation
         (1) Eight-inches (8") , or as required by the Drawings or Owner
      b. Width
         (1) Foundation width plus two-feet (2') or to edge of excavation whichever is greater.
   4. Placement
      a. Shall be placed in a manner as to not damage any utility or improvements.
      b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
      c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
   5. Compaction
      a. General
         (1) Shall be compacted in a manner as to not damage any utility or improvements.
      b. Class I Backfill Material
         (1) Hand tamp with tamping plate or other approved method at a moisture content determined by the Contractor for effective compaction without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
      c. Class II Backfill Material
         (1) Hand tamp with tamping plate or other approved method at three-percent (3%) of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 698 without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
      d. Crushed Stone Backfill Material

(1) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

D. Initial Backfill
1. General
a. The placing of the material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter and prevent damage to any other work.
2. Material
a. Excavation less than twenty-feet (<20') in depth and above groundwater table:
(1) Shall be Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
b. Excavation greater than twenty-feet (>20') in depth and below groundwater table:
(1) Shall be Flowable Fill Backfill Material, or as required by the Drawings or Owner.
(2) Allow to cure prior to placement of Final Backfill
3. Requirement
a. Above Bedding
(1) Five-feet (5') or to the bottom of the bottom of road subgrade material, whichever is less, or as required by the Drawings or Owner
b. Width
(1) To extent of excavation.
4. Placement
a. Shall be placed in a manner as to not damage any utility or improvements.
b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
5. Compaction
a. General
(1) Shall be compacted in a manner as to not damage any utility or improvements.
b. Cement Stabilized Sand Backfill Material
(1) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

E. Final Backfill
1. General
a. All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
b. The placing of the material shall be done in such a manner so as to be free of all foreign matter.
c. Flooding or jetting of backfill is not allowed.
2. Material
a. Paved Areas
(1) Top of Initial Backfill to the bottom of road subgrade material
(a) Cement Stabilized Backfill Material, or as required by the Drawings or Owner.
b. Non-Paved Areas
(1) Top of Initial Backfill to six-inches (6") below finished grade
(a) Native Backfill Material, or as required by the Drawings or Owner.
(2) Top six-inches (6")
(a) Topsoil Backfill Material, or as required by the Drawings or Owner.
3. Placement
1) Shall be placed in a manner as to not damage any utility or improvements.
2) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.

3) The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.

4. Compaction
   a. General
      (1) Shall be compacted in a manner as to not damage any utility or improvements.
   b. Cement Stabilized Sand Backfill Material
      (1) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
   c. Native Backfill Material
      (1) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
   d. Topsoil Backfill Material
      (1) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
      (2) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.
5. Compaction Testing
   a. Frequency of tests shall not be less than one (1) per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of Initial Backfill, in accordance with ASTM D 2922.
   b. Failure
      (1) If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

C. Inlet

A. Schedule of Backfilling
   1. Backfilling shall commence as soon as concrete or masonry has been allowed to cure the required time and forms and shoring have been removed.

B. Subgrade
   1. Shall be undisturbed native material, or as required by the Drawings or Owner.
   2. Compact top six-inches (6") to 95% Standard Proctor Density.

C. Bedding
   1. General
      a. The placing of the backfill material shall be done in such a manner so as to be free of all natural soil or other foreign matter and prevent damage to any other work.
   2. Material
      a. Crushed Stone Backfill Material, or as required by the Drawings or Owner.
   3. Requirement
      a. Below Foundation
         (1) Eight-inches (8"), or as required by the Drawings or Owner
      b. Width
         (1) Foundation width plus two-feet (2') or to edge of excavation whichever is greater.
   4. Placement
      a. Shall be placed in a manner as to not damage any utility or improvements.
      b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
      c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
   5. Compaction
      a. General
         (1) Shall be compacted in a manner as to not damage any utility or improvements.
      b. Crushed Stone Backfill Material

(1) Hand tamp with tamping plate or other approved method for effective compaction, or as required by the Drawings or Owner.

D. Initial Backfill
1. General
a. The placing of the material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter and prevent damage to any other work.
2. Material
a. Paved Side
(1) Shall be Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
(2) Requirement
(a) Above Bedding
i. Five-feet (5') or to the bottom of the bottom of road subgrade material, whichever is less, or as required by the Drawings or Owner
(b) Width
i. To extent of excavation.
b. Non Paved Side
(1) Shall be Cement Stabilized Sand Backfill Material, or as required by the Drawings or Owner.
(2) Requirement
(a) Above Bedding
i. Five-feet (5') or eight-inches (8") below final grade, or as required by the Drawings or Owner
(b) Width
i. To extent of excavation.
3. Placement
a. Shall be placed in a manner as to not damage any utility or improvements.
b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
4. Compaction
a. Shall be compacted in a manner as to not damage any utility or improvements.
b. Cement Stabilized Sand Backfill Material
(1) Shall be hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.

E. Final Backfill
1. General
a. All trenches and excavation shall be backfilled as soon as is practical after the embedment and accessories have been properly placed.
b. The placing of the material shall be done in such a manner so as to be free of all foreign matter.
c. Flooding or jetting of backfill is not allowed.
2. Material
a. Paved Side
(1) Top of Initial Backfill to the bottom of road subgrade material
(a) Cement Stabilized Backfill Material, or as required by the Drawings or Owner.
b. Non-Paved Side
(1) Top of Initial Backfill Material to six-inches (6") below finished grade
(a) Native Backfill Material, or as required by the Drawings or Owner.
(2) Top six-inches (6")
(a) Topsoil Backfill Material, or as required by the Drawings or Owner.

3. Placement
   a. Shall be placed in a manner as to not damage any utility or improvements.
   b. Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench.
   c. The placing of the embedment material shall be done in such a manner so as to be free of all natural soil, rock, or other foreign matter.
4. Compaction
   a. General
      (1) Shall be compacted in a manner as to not damage any utility or improvements.
   b. Cement Stabilized Sand Backfill Material
      (1) Hand tamp with tamping plate or other approved method on the dry side of optimum moisture content to ninety-five percent (95%) of maximum dry density determined according to ASTM D 558 but sufficient for effective hydration of the cement without softening the soil of foundation or trench walls, or as required by the Drawings or Owner.
   c. Native Backfill Material
      (1) Compacted by use of industry standard equipment to ninety-percent (90%) Standard Proctor, or as required by the Drawings or Owner.
   d. Topsoil Backfill Material
      (1) Shall be placed in layers not more than eight-inches (8") in depth (loose measurement) the total width of the trench, or as required by the Drawings or Owner.
      (2) Compacted by use of industry standard equipment to a firm density, or as required by the Drawings or Owner.

F. Compaction Testing
1. Frequency of tests shall not be less than one (1) per two-feet (2') vertical of backfill material to top of Final Backfill, not including Topsoil Backfill Material, starting at two feet (2') above top of Initial Backfill, in accordance with ASTM D 2922.
2. Failure
   a. If compaction of the fill material does not meet or exceed the requirements that portion of fill material is to be further compacted and retested at the sole expense of the Contractor.

SECTION 33 42 11

STORMWATER GRAVITY PIPING

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the furnishing and placing of stormwater pipe and the material and incidental construction requirements for stormwater pipe as required to complete the project.

1.02 Related Sections

A. 03 21 11 REINFORCING STEEL
B. 03 31 11 CONCRETE STRUCTURES
C. 31 23 16.13 TRENCHING
D. 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES
E. 33 05 07 TRENCHLESS UTILITY INSTALLATION

1.03 References *The latest edition of the referenced item below shall be used.*

A. AASHTO M 198 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
B. AASHTO M 259 – Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers
C. AASHTO M 273 – Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 2 ft of Cover Subjected to Highway Loadings
D. AASHTO M 288 – Standard Specification for Geotextile Specification for Highway Applications
E. ASTM C 76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, Sewer Pipe
F. ASTM C 443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe using Rubber Gaskets.
G. ASTM C 497 – Standard Test Method for Concrete Pipe, Manhole Sections, or Tile.
H. ASTM C 506 – Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, Sewer Pipe.
I. ASTM C 507 – Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, Sewer Pipe.
J. ASTM C 655 – Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, Sewer Pipe.
K. ASTM C 990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
L. ASTM C 1433 – Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers.
M. ASTM D 2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
N. Texas Department of Transportation (TxDOT) Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges Item 462 – Concrete Box Culverts and Storm Drains
O. *American Association of State Highway and Transportation Officials* (AASHTO)
P. American Welding Society Specifications
Q. American Concrete Pipe Association (ACPA)
R. National Precast Concrete Association (NCPA)

1.04 Submittals

A. Pipe information noting compliance with this specification.
B. Gasket information noting compliance with this specification.

PART 2 - PRODUCTS

2.01 General

A. All pipe shall be manufactured at an American Concrete Pipe Association (ACPA) Certified Plant or a National Precast Concrete Association (NCPA) Certified Plant.
B. To substitute a material or equipment it will be the responsibility of the Contractor to provide all required information to determine that the material or equipment is equal or better to the Owner for approval prior to incorporation into the Project.
C. All products shall be in accordance with this specification unless otherwise noted on the Drawings.

2.02 Concrete Pipe

A. General
   1. All pipe shall be bell and spigot, unless otherwise noted on the Drawings or indicated by the Owner.
   2. Bell and spigot shall be formed for the acceptance of gasket material

B. Workmanship and Finish
   1. Pipe shall be substantially free from fractures, large or deep cracks and surface roughness.
   2. The ends of the pipe shall be normal to the walls and centerline of the pipe within the limits of variations allowed under the applicable ASTM specification.
   3. Shall be in accordance with the industry standards.
      a. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

C. Fabrication
   1. Pipe shall conform to ASTM Designation C 76 for Circular Pipe; ASTM Designation C 506 for Arch Pipe, or ASTM Designation C 507 for Elliptical Pipe.
   2. All precast concrete pipe shall be machine made or cast by a process that will provide for uniform placement of the concrete in the form and compaction by mechanical devices that will assure a dense concrete.
   3. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured.
   4. Transit mixed concrete will not be acceptable for use in precast concrete pipe.

D. Lifting Holes
   1. Do not place more than two (2) holes for lifting and placing in the top section of precast pipe
   2. Cast, cut, or drill the lifting holes in the wall of the pipe.
      a. The holes shall be neat and without spalling of the concrete.
   3. The maximum hole diameter is three-inch (3”) at the inside surface of the pipe wall and four-inch (4”) at the outside surface.
   4. Do not cut more than one (1) longitudinal wire or two (2) circumferential wires per layer of reinforcing steel when locating lift holes.

E. Design
   1. All pipe shall be Class III (Wall "B") unless otherwise specified on the Drawings.
   2. The shell thickness, the amount of circumferential reinforcement and the strength of the pipe shall conform to the specified Class as summarized in ASTM Designation C 76 for Circular Pipe; C 506 for Arch Pipe; C 507 for Elliptical pipe.
   3. Minimum cover for all pipes shall be one foot (1’).

F. Physical Test Requirements
   1. The acceptability of the pipe shall be determined by the results of the following tests:
      a. Material tests required in ASTM C 76, C 655, C 506, or C 507
      b. Absorption tests in accordance with ASTM C 497
      c. Three-edge bearing test in accordance with ASTM C 497
         1) Shall be performed on one (1) pipe for each 300 pipes, or faction thereof, for each type, size class, or D-Load produced within 30 calendar days.
         2) Test for the load to produce a 0.01-inch crack or fifteen-percent (15%) in excess of the required D-Load, whichever is less.
         3) Test the pipe to ultimate load when directed.
      d. As an alternate to the three-edge bearing test, concrete pipe fifty-four inches (54”) in diameter and larger may be accepted, at the option of the manufacturer, on the basis of compressive strength of cores cut from the wall of the pipe.
      e. The manufacturer must determine the compressive strength of the samples. Obtain, cure, prepare, and test the cores in accordance with ASTM C 496.
      f. The manufacturer must plug and seal the core holes in the pipe wall after testing.
      g. Inspect the finished pipe to determine its conformance with the design prescribed in these specifications and its freedom from defects.

G. Marking
   1. The following information shall be clearly marked on each section of pipe:
      a. The class of pipe,

b. ASTM designation,
c. The date of manufacture,
d. The name of trade mark of the manufacturer,
e. All markings shall be indented on the pipe section or painted thereon with waterproof paint.
f. Elliptical Pipe
1) One (1) end of each section of pipe with elliptical reinforcement shall be clearly marked during the process of manufacture or immediately thereafter on the inside and the outside of opposite walls to show the location of the "top" or "bottom" of the pipe as it should be installed, unless the external shape of the pipe is such that the correct position of the top and bottom is obvious.

H. Inspection
1. The quality of materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Engineer at the pipe manufacturing Plant.
2. In addition, the finished pipe shall be subject to further inspection by the Owner at the project site prior to and during installation.

I. Curing
1. Pipe shall be cured in accordance with the applicable ASTM Specification for each type of pipe.

J. Minimum Age for Shipment
1. Pipe shall be considered ready for shipment when it conforms to the requirements of the tests specified herein and has cured.

K. Causes for Rejection
1. Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements.
2. Individual sections of pipe may be rejected because of any of the following:
a. Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint,
b. Defects that indicate imperfect proportioning, mixing and molding,
c. Surface defects indicating honeycombed or open texture,
d. Damaged ends, where such damage would prevent making a satisfactory joint,
e. Any continuous crack having a surface width of 0.01 inch or more and extending for a length of twelve-inch (12”) or more.
f. Circular pipe which is “out-of-round”.

L. Repairs
1. Pipe may be repaired if necessary, because of occasional imperfections in manufacture or accidental injury during the handling in accordance with manufacturer recommendations, and will be acceptable if, in the opinion of the Owner, the repairs are sound and properly finished and cured and the repaired pipe conforms to the requirements of the specifications.

M. Rejections
1. All rejected pipes shall be plainly marked by the Owner and shall be replaced by the Contractor with pipe that meets the requirements of these specifications.
2. Such rejected pipe shall be removed immediately from the worksite.

2.03 Concrete Box Culvert

A. General
1. The Contractor shall have the option of furnishing cast-in-place and/or precast boxes unless a specific type is called for on the Drawings or in the special provisions.

B. Cast-in Place
1. When cast-in-place boxes are used, they shall conform to the details of the culvert designs shown in the Drawings.

C. Precast
1. General
a. All pipe shall be manufactured at an American Concrete Pipe Association (ACPA) Certified Plant or a National Precast Concrete Association (NCPA) Certified Plant.
b. All box culvert shall be bell and spigot, unless otherwise noted on the Drawings or indicated by the Owner.
c. Bell and spigot shall be formed for the acceptance of gasket material

2. Workmanship and Finish
    a. Box culvert shall be substantially free from fractures, large or deep cracks and surface roughness.
    b. The ends of the box culvert shall be normal to the walls and centerline of the box culvert within the limits of variations allowed under the applicable ASTM specification.
    c. Shall be in accordance with the industry standards.
        1) In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.
3. Fabrication
    a. Box culvert shall conform to AASHTO M 259, AASHTO M 273, ASTM C 1433, and be rated for AASHTO HS-20 loading.
    b. All precast concrete box culvert shall be machine made or cast by a process that will provide for uniform placement of the concrete in the form and compaction by mechanical devices that will assure a dense concrete.
    c. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured.
    d. Transit mixed concrete will not be acceptable for use in precast concrete box culvert.
4. Lifting Holes
    a. Do not place more than four (4) holes for lifting and placing in the top section of precast box culvert
    b. Cast, cut, or drill the lifting holes in the wall of the box culvert.
        1) The holes shall be neat and without spalling of the concrete.
    c. The maximum hole diameter is three-inch (3") at the inside surface of the box culvert wall and four (4) inch at the outside surface.
    d. Do not cut more than one (1) longitudinal wire or two (2) circumferential wires per layer of reinforcing steel when locating lift holes.
5. Design
    a. All box culvert shall be Class III (Wall "B") unless otherwise specified on the Drawings.
    b. The shell thickness, the amount of circumferential reinforcement and the strength of the box culvert shall conform to ASTM C 1433.
    c. Minimum cover for all box culverts shall be two-foot (2').
6. Physical Test Requirements
    a. The acceptability of the box culvert shall be determined by the results of the following tests:
        1) Material tests required in ASTM C 1433.
        2) The manufacturer must plug and seal the core holes in the box culvert wall after testing.
        3) Inspect the finished box culvert to determine its conformance with the design prescribed in these specifications and its freedom from defects.
7. Marking
    a. The following information shall be clearly marked on each section of box culvert:
        1) The class of box culvert,
        2) ASTM designation,
        3) The date of manufacture,
        4) The name of trade mark of the manufacturer,
        5) All markings shall be indented on the box culvert section or painted thereon with waterproof paint.
8. Inspection
    a. The quality of materials, the process of manufacture, and the finished box culvert shall be subject to inspection and approval by the Engineer at the box culvert manufacturing Plant.
    b. In addition, the finished box culvert shall be subject to further inspection by the Owner at the project site prior to and during installation.
9. Curing
    a. Box culvert shall be cured in accordance with the applicable ASTM Specification for each type of box culvert.
10. Minimum Age for Shipment
    a. Box culvert shall be considered ready for shipment when it conforms to the requirements of the tests specified herein and has cured.

11. Causes for Rejection
    a. Box culvert shall be subject to rejection on account of failure to conform to any of the specification requirements.
    b. Individual sections of box culvert may be rejected because of any of the following:
        1) Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint,
        2) Defects that indicate imperfect proportioning, mixing and molding,
        3) Surface defects indicating honeycombed or open texture,
        4) Damaged ends, where such damage would prevent making a satisfactory joint,
        5) Any continuous crack having a surface width of 0.01 inch or more and extending for a length of twelve-inch (12") or more.
        6) Box culvert which is "out-of-square".
12. Repairs
    a. Box culvert may be repaired if necessary, because of occasional imperfections in manufacture or accidental injury during the handling in accordance with manufacturer recommendations, and will be acceptable if, in the opinion of the Owner, the repairs are sound and properly finished and cured and the repaired box culvert conforms to the requirements of the specifications.
13. Rejections
    a. All rejected box culverts shall be plainly marked by the Owner and shall be replaced by the Contractor with box culvert that meets the requirements of these specifications.
        1) Such rejected box culvert shall be removed immediately from the worksite.
14. Alternate designs of precast boxes will be considered for approval upon submission of shop drawings detailing the box and certifications that the box, as designed, is structurally comparable to or better than the box shown in the contract drawings and is designed to support HS-20 loading per AASHTO M 273 and ASTM C 1433.
    a. The shop drawings and certifications shall be signed and sealed by a Texas Registered Professional Engineer.

D. Concrete
1. Unless otherwise shown on the Drawings, Class "A" concrete shall be used for cast-in-place and precast (formed) boxes, conforming to the requirements of Section 03 31 11 CONCRETE STRUCTURES.
2. Class "C" concrete will be required for direct traffic boxes for cast-in-place and precast boxes.
3. Concrete for precast (machine-made) boxes shall meet the requirements of ASTM C 76, Sections: Cement, Aggregates and Mixture, and shall have a minimum twenty-eight (28) day compressive strength of 4,000 psi.

2.04 Corrugated Polyethylene Pipe

A. General
1. The product supplied under this specification shall be high density polyethylene corrugated exterior/smooth interior pipe. Twelve to 36 inch diameters shall conform to AASHTO M294 Type S; 8- and 10-inch diameters shall meet the strength requirements of AASHTO M252 with the addition that the pipe have a smooth interior liner. Material shall conform to ASTM D3350. Minimum conveyance factors shall be as shown in Table 1.

B. Rejection of Polyethylene Pipe
1. All rejected pipe shall be plainly marked by the Engineer and shall be replaced by the Contractor with pipe which meets the requirements of these specifications. Such rejected pipe shall be removed immediately from the site of work. Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements. Individual sections of pipe may be rejected because of any of the following:
    a. Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint.
    b. Defects that indicate imperfect proportioning, mixing and molding.
    c. Damaged ends, where such damage would prevent making a satisfactory joint.
    d. Careless dumping of pipe from truck. The Engineer shall be judge of aforesaid items.

2.05 Jointing Materials

A. Concrete Pipe
   1. Cold Applied Preformed Plastic Gaskets
      a. Shall conform to AASHTO M 198 and ASTM C 990.
      b. Joint material and primer shall be supplied for use on pipe as recommended by the manufacturer.
   2. Geotextile for wrapping joints shall be Class 1 geotextile for subsurface drainage with an average opening size, AOS, of .22 mm. and two-feet (2) wide in accordance AASHTO M 288.

B. Polyethylene Pipe
   1. Pipe joints and fittings shall conform to AASHTO M252 or AASHTO M294
   2. All coupling bands shall conform to ASTM D3212 (10.8 psi watertight) and meet or exceed the soil-tightness requirements of the AASHTO Standard Specifications for Highway Bridges, Section 23, paragraph 23.3.1.5.4(e).
      a. Coupling bands shall cover at least one full corrugation on each section of pipe.
      b. When gasketed coupling bands are required, the gasket shall be made of closed-cell synthetic expanded rubber meeting the requirements of ASTM D1056, Grade RE42.
         1) All gaskets shall be installed on the coupler by the pipe manufacturer prior to delivery to the job site.
   3. Fittings shall conform to the requirements of AASHTO M294.

2.06 Lift Hole Plug

A. Concrete Plug
   1. Shall be tapered, or as recommended by the manufacturer of the pipe.
   2. Shall be used for mechanically and man-made lift holes

B. Polyethylene Plug
   1. Shall resist internal pressure within the pipe of a minimum of 7 psi.
   2. Shall be used for mechanically made lift holes

2.07 Cement Mortar

A. Shall be composed of one (1) part Portland Cement and (2) parts sand.

2.08 Backfill Materials

A. Shall be in accordance with Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES unless otherwise indicated on the Drawings.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, manufacturer recommendations, and industry standards.
   1. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

B. Cast-in Place
   1. The requirement of Section 03 31 11.13 CONCRETE STRUCTURES shall govern for cast-in-place concrete culverts and for precast (formed) boxes except where otherwise specified herein.
   2. Concrete boxes shall be given an ordinary surface finish.
   3. Forms
      a. Forms for precast (machine-made) boxes shall be made of steel.
      b. Forms for cast-in-place boxes and precast (formed) boxes may be either wood or steel.
      c. Forms shall be mortar-tight and of sufficient strength to prevent excessive bulging or misalignment of adjacent boxes.
      d. They shall be constructed to permit their removal without damage to the concrete.
      e. Offsets at form joints shall not exceed one-eighth inch (1/8”).
      f. Forms shall be clean and free of extraneous matter when concrete is placed.
   4. Positive means of supporting steel cages in place throughout forming and concrete placement shall be required and subject to the approval of the Owner.
   5. Welding of reinforcing steel will be permitted only where shown on the Drawings.
      a. Welding shall be done by a qualified welder and shall conform to the requirements of the applicable section of the American Welding Society specifications.

C. Precast (machine-made) boxes shall be cast by a process, which will provide for uniform placement of the concrete in the forms and compaction by mechanical devices that will assure dense concrete.
D. Concrete shall be mixed in a central batch Plant or other approved batching facility from which the quality and uniformity of the concrete can be assured.
E. Transit mixed concrete shall not be acceptable for use in precast (machine-made) boxes.

3.02 Testing and Certification

A. Physical Requirements
   1. Precast boxes shall meet the requirement of TxDOT Tex 704-I.
B. Testing
   1. Testing shall be done by a Materials Engineering Laboratory which meets the requirements for membership in the American Council of Independent Laboratories.
C. Certification
   1. Certification of quality shall be provided with each delivery of materials to the job site by the manufacturer.
   2. Certification shall be a written report by the Materials Engineering Testing Laboratory.

3.03 Fabrication Tolerances

A. Precast boxes shall conform to the following tolerances:
   1. When two (2) box sections are fitted together on a flat surface, in proper alignment and in the position they will be installed, the longitudinal opening at any point shall not exceed one-inch (1”).
   2. When fine cracks or hairline cracks on the surface indicate poor curing practices, further production of precast boxes shall be discontinued until corrections are made and proper curing provided.

3.04 Defects and Repairs

A. Fine cracks or checks on the surface
   1. If it does not extend to the plane of the nearest reinforcement will not be cause for rejection unless they are numerous and extensive.
   2. Cracks that extend into the plane of the reinforcing steel but are acceptable otherwise, shall be repaired in an approved manner.
B. Small damaged or honeycombed areas
   1. Purely surface in nature may be repaired.
   2. Excessive damage, honeycomb or cracking will be subject to structural review.
   3. Repairs shall be sound, properly finished and cured in conformance with the pertinent specifications.

3.05 Excavation

A. As per Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES.

3.06 Laying Pipe

A. Unless otherwise authorized by the Owner, the laying of pipe on the prepared foundation shall be started at the outlet end with the spigot or tongue end pointing downstream and shall proceed upstream with the abutting sections properly matched, true to the established lines and grades.
B. Lifting holes shall be at the 12:00 position (on the top) of the pipe when pipe is in final place.
C. Where bell and spigot pipe are used, cross trenches shall be cut in the foundation to allow the barrel of the pipe to rest firmly upon the prepared bed.
   1. These cross trenches shall be not more than two-inches (2”) larger than the bell ends of the pipe.
D. Proper facilities shall be provided for hoisting and lowering the sections of pipe into the trench without disturbing the prepared foundation and the sides of the trench.
E. The ends of the pipe shall be carefully cleaned before the pipe is placed.
F. As each length of pipe is laid, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material.
G. The pipe shall be fitted and matched so that when laid in the bed, it shall form a smooth, uniform conduit.
H. When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such position that the markings "Top" or "Bottom", shall not be more than five (5) degrees from the vertical plane through the longitudinal axis of the pipe.
I. Multiple installations of reinforced concrete pipe shall be laid with the centerlines of individual barrels parallel. When not otherwise indicated on Drawings, the Table 1 clear distances between outer surfaces of adjacent pipe shall be used.

Table 1 Minimum Clear Distance Between Multiple Pipes	
Diameter of Pipe (inch)	Clear Distance Between Pipes
18"	0'- 9"
24"	0'-11"
30"	1'- 1"
36"	1'- 3"
42"	1'- 5"
48"	1'- 7"
54"	1'-11"
60" to 84"	2'- 0"

3.07 Jointing

A. Joints using Cold Applied Preformed Plastic Gaskets:
   1. Primer
      a. Shall be installed as per manufacturer recommendations.
      b. No primer shall be applied over mud, sand, dirt, or sharp cement protrusions.
      c. The surface to be primed must be clean and dry when primer is applied.
   2. Gasket
      a. Before laying the pipe in the trench, the plastic gasket sealer shall be attached around the tapered tongue or tapered groove near the shoulder or hub of each pipe joint.
      b. Gasket shall be installed as per manufacturer recommendations.
      c. The paper wrapper shall be removed from one side only of the two-piece wrapper on the gasket and pressed firmly to the clean, dry pipe joint surface.
      d. When the atmospheric temperature is below 60 degrees F, plastic joint seal gaskets shall either be stored in an area warmed to above 70 degrees F, or artificially warmed to this temperature in a manner satisfactory to the Owner.
         1) Gaskets shall be applied to pipe joints immediately prior to placing pipe in trench, followed by connection to previously laid pipe.
      e. The outside wrapper shall not be removed until immediately before pushing the pipe into its final position.
      f. Additional gasket material may be required if, in the opinion of the Owner, a proper joint is not secured, and additional gasket material shall be required for non-circular concrete pipe as required by the Owner.
   3. Joining
      a. When the tongue is correctly aligned with the flare of the groove, the outside wrapper on the gasket shall be removed and the pipe shall be pulled or pushed home with sufficient force and power to cause the evidence of squeeze-out of the gasket material on the inside or outside around the complete pipe joint circumference.
      b. Any joint material pushed out into the interior of the pipe that would tend to obstruct the flow shall be removed.
      c. Pipe shall be pulled or pushed home in a straight line with all parts of the pipe on line and grade at all times.
   4. All pipe joints shall be wrapped with Geotextile.
      a. The wrap shall be centered on each joint.
      b. The wrap does not remove the requirements of the use of gasket.

B. Mortar Joints
   1. Is prohibited from jointing pipe except at manholes, pipe junction, etc., or where specifically approved by the Owner.
   2. Pipe shall be pulled or pushed home in a straight line with all parts of the pipe on line and grade at all times.

3. Shall be placed as to form a durable watertight joint.
4. The installation shall be as required by the Owner.

3.08 Lifting Holes

A. When used by the Contractor to handle the pipe shall be used in accordance with manufacturer recommendations.

B. Filling of Hole

1. Concrete Plug
    a. Plug shall be used in conjunction with a Cold Applied Preformed Plastic Gasket to form a seal that will not allow soil to migrate through the opening, or required on the Drawings or by the Owner.
    b. Shall be used for mechanically and man-made lift holes
    c. The pipe at the location of the plug shall be wrapped with Geotextile.
        1) Care shall be taken to not allow the Geotextile to move or allow backfill material to be under Geotextile
2. Polyethylene Plug
    a. Plug shall be installed as recommended by Manufacturer
    b. Shall be covered with mortar and allowed to set to firm prior to installation of backfill
    c. Shall be used only for mechanically made lift holes.

3.09 Backfill

A. Shall be in accordance with Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES unless otherwise indicated on the Drawings.

SECTION 33 42 30
STORMWATER STRUCTURES

PART 1 - GENERAL

1.01 Description

A. This specification shall govern work required for the furnishing and installing of storm water utility manholes, inlets, frames, grates, and covers as required to complete the project.

1.02 Related Sections

A. 03 21 11 REINFORCING STEEL
B. 03 31 11 CONCRETE STRUCTURES
C. 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES
D. 33 42 11 STORMWATER GRAVITY PIPING

1.03 References The latest edition of the referenced item below shall be used.

A. AASHTO M 105 – Standard Specification for Gray Iron Castings
B. AASHTO M 288 – Standard Specification for Geotextile Specification for Highway Applications
C. AASHTO M 306 – Standard Specification for Drainage, Sewer, Utility, and Related Castings
D. ASTM A 27 – Standard Specification for Steel Castings, Carbon, for General Application
E. ASTM A 36 – Standard Specification for Carbon Structural Steel
F. ASTM A 48 – Standard Specification for Gray Iron Castings
G. ASTM A 536 – Standard Specification for Ductile Iron Castings
H. ASTM C 76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
I. ASTM C 443 – Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
J. ASTM C 478 – Standard Specification for Precast Reinforced Concrete Manhole Sections
K. ASTM C 581 – Practice for determining chemical resistance of thermosetting resins used in glass-fiber reinforced Structures Intended for Liquid Service
L. ASTM C 923 – Standard Specification for Resilient manhole connectors
M. ASTM D 695 – Test method for compressive properties of rigid plastics
N. ASTM D 790 – Test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials.
O. ASTM D 2412 – Test Method for external loading properties of plastic pipe by parallel-plate loading.
P. ASTM D 2583 – Test method for indentation hardness of rigid plastics by means of a barcol impresser.
Q. ASTM D 2584 – Test method for ignition loss of cured reinforced resins
R. ASTM D 3753 – Glass Fiber Reinforced Polyester Manholes
S. American Association of State Highway and Transportation Officials (AASHTO)
T. Texas Administrative Code Title 30, Part 1, Chapter 217, Subchapter C, Rule §217.55
U. Texas Accessibility Standards (TAS)
V. Texas Department of Transportation (TxDOT) Departmental Material Specification DMS 7340 – Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Junction Boxes and Inlets
W. American Welding Society

1.04 Submittals

A. Submit manufacturer's data, details, and shop drawings for the following items showing compliance with specifications:
    1. Manhole
        a. Design
        b. Fabrication
        c. Fiberglass components
        d. Installation instruction
        e. Pipe Connector
        f. Base
        g. Inflow Inhibitor
    2. Grade Adjustment Rings
    3. Frames and Covers

PART 2 - PRODUCTS

2.01 General

A. To substitute a material or equipment it will be the responsibility of the Contractor to provide all required information to determine that the material or equipment is equal or better to the Owner for approval prior to incorporation into the Project.

B. All products shall be in accordance with this specification unless otherwise noted on the Drawings.

2.02 Manholes

A. General
   1. Manholes may be made from cast in place Class "A" Concrete, precast concrete, fiberglass, or a combination of these materials when indicated by the Owner.
   2. Reinforcing steel, if required, shall be as shown on Drawings.
      a. Reinforcing Steel shall conform to the requirements of the specification Section 03 21 11 REINFORCING STEEL.
   3. The bottom of manholes shall be carefully formed and inverted smoothly when finished, with pipes cut to fit inside surface of walls.
   4. Mortar for masonry or plastering shall be:
      a. One (1) part Portland Cement to three (3) parts clean hard and sharp mortar sand, free of all foreign substances or injurious alkalis.
      b. Water shall be clean potable water free of foreign substances or injurious alkalis.

B. Concrete
   1. Formed in Place
      a. Shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES
      b. Concrete shall be Class "A" conforming to Section 03 31 11 CONCRETE STRUCTURES.
   2. Precast
      a. Precast manholes shall allow unobstructed view of all pipes connected to the manhole.
      b. Precast manholes shall be designed in accordance with ASTM C 478, and AASHTO M 306.
         1) Must be designed and sealed by a Texas Licensed Engineer.
      c. Either concentric or eccentric cones may be required.
         1) Where not specified, the eccentric cones shall be used.
      d. Manhole designs shall be submitted for approval.
      e. Shall be monolithic when possible.
         1) If non-monolithic then joint shall be tongue and groove.
      f. The following information shall be clearly marked on each manhole:
         1) The class of pipe,
         2) ASTM designation,
         3) The date of manufacture,
         4) The name of trade mark of the manufacturer,
         5) Marking shall be indented on the pipe section or painted thereon with waterproof paint.
      g. Shall be constructed with base of not less than twelve-inches (12”) thick below lowest invert.

C. Fiberglass
   1. Fiberglass manholes shall be fabricated in accordance with ASTM D 3753 and the referenced design criteria as follows:
      a. ASTM C 581 – Practice for determining chemical resistance of thermosetting resins used in glass-fiber reinforced Structures Intended for Liquid Service
      b. ASTM D 695 – Test method for compressive properties of rigid plastics
      c. ASTM D 790 – Test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials.
      d. ASTM D 2412 – Test Method for external loading properties of plastic pipe by parallel-plate loading.
      e. ASTM D 2583 – Test method for indentation hardness of rigid plastics by means of a barcol impresser.
      f. ASTM D 2584 – Test method for ignition loss of cured reinforced resins
   2. The minimum wall thickness for all fiberglass manholes at all depths shall be one-half inch (1/2”).
   3. The inside diameter of the manhole barrel shall be either forty-eight inches (48") or one and one-half (1.5) times the nominal pipe diameter of the largest pipe, which ever is larger.

4. A concentric reducer over the barrel shall have a minimum inside diameter in accordance with the Drawings.
5. Shall be able to withstand AASHTO M 306 HS-20 Traffic Loading.
6. Markings and Identifications
    a. Shall be placed on the inside and/or outside as required.
    b. Inside required Markings and Identifications shall be placed immediately below the upper factory bond joint or approximately one foot (1') below the corbel, whichever is less.
        1) Manufacturers Name
        2) Manufacturers Trademark
        3) Manufacturers Serial Number
        4) Manhole Length
        5) ASTM Designation

D. Manhole Diameter
1. Shall be as noted on the Drawings
    a. In all cases shall be in accordance with Texas Administrative Code Title 30, Part 1, Chapter 217, Subchapter C, Rule §217.55

E. Manhole Pipe Connectors
1. Fiberglass
    a. Gasket Material
        1) Shall be in accordance with ASTM C 923
2. Concrete
    a. Shall provide a watertight connection and be in accordance with ASTM C 923
    b. Mortar shall be used when indicated on the Drawings or by the Owner.

F. Geotextile Wrap
1. Shall be Class A Subsurface Drainage Geotextile, AASHTO M 288.

G. Manhole Base
1. Concrete shall be Class A in accordance with Section 03 31 11 CONCRETE STRUCTURES.
2. Precast Reinforced Concrete Manhole Base shall be in accordance with requirements of ASTM C 478 as shown on construction Drawings and detail Drawings.
3. Reinforcing Steel
    a. Reinforcing Steel shall conform to the requirements of the specification Section 03 21 11 REINFORCING STEEL.

2.03 Grade Adjustment Rings

A. All rings to adjust the height of the manhole shall be made from HDPE and withstand ASSHTO M 306 HS-20 Traffic Loading.

B. The internal diameter of the ring shall not be less than thirty inches (30").

2.04 Inlets

A. General
1. Concrete
    a. Concrete for inlets shall be Class "A" concrete conforming to the requirements of the specification, Section 03 31 11 CONCRETE STRUCTURES, except as otherwise provided on the Drawings.
    b. Mortar
        1) Mortar shall be composed of one (1) part Portland cement and two (2) parts clean, sharp mortar sand suitable graded for the purpose by conforming in other respects to the provisions of the section 03 31 11 CONCRETE STRUCTURES for fine aggregate.
        2) Hydrated lime or lime putty may be added to the mix but in no case shall it exceed ten-percent (10%) by weight of the total dry mix.
    c. Reinforcing Steel
        1) Reinforcing Steel shall conform to the requirements of the specification Section 03 21 11 REINFORCING STEEL.

B. Precast Inlet
1. Submit shop drawings which indicate size of the inlet and is sealed by a Licensed Texas Professional Engineer.
2. Inlet top shall be interlocking to the base and be grouted in which will construct a one-piece unit.

C. Inlet Pipe Connectors
   1. Gasket Material
      a. Shall be in accordance with Section 33 42 11 STORMWATER GRAVITY PIPING
         1) Rubber gaskets are not allowed.
   2. Geotextile Wrap
      a. Shall be Class A Subsurface Drainage Geotextile, AASHTO M 288.

2.05 Grade Adjustment Rings

A. All rings to adjust the height of the manhole shall be made from 100% HDPE and withstand ASSHTO M 306 HS-20 Traffic Loading.
B. The internal diameter of the ring shall not be less than thirty inches (30”).

2.06 Frames, Grates and Covers

A. General
   1. Manhole frame & cover shall be designated for street application designed to meet AASHTO M306 HS-20 Traffic Loading.
      a. Shall be rated for traffic service withstanding an application of 40,000 pound proof load in accordance with AASHTO M 306.
      b. Within the Right-of-Way and in Pavements, Sidewalks, Driveways
         1) Shall be heavy duty traffic rated meeting AASHTO M 306
      c. Within the Right-of-Way and in Pavements, Sidewalks, Driveways within School Zones
         1) Shall be heavy duty traffic rated and able to be bolted meeting AASHTO M 306
   2. All products shall be domestically made in the United States of America.
   3. Shall be in accordance with the details shown in the Drawings.
      a. Other patterns for frames, grates, and covers may be submitted for approval by the Owner
   4. Cover shall be permeable with openings that meet the requirements of Texas Accessibility Standards (TAS)
   5. Shall be true to pattern, form, and dimensions.
   6. Shall be free from cracks, sponginess, and blowholes.
   7. Shall be machined to yield a fit which will not rattle with passing traffic load.
   8. Each casting shall be identifiable and show, at a minimum, the following:
      a. Name of the producing foundry
      b. Country of manufacture
      c. ASTM material designation
      d. Recycle symbol
      e. Individual part number
      f. Cast or heat date
B. Coatings
   1. Shall be dipped in coal tar or asphalt unless the Drawings or Owner requires a different treatment.
C. Welded Steel Frames and Grates
   1. Shall conform to the member size, dimensions and details shown on the Drawings and shall be welded into an assembly in accordance with those details.
   2. Welding shall be in accordance with American Welding Society
   3. Steel shall conform to the requirements of ASTM A 36.
D. Castings
   1. Whether Carbon-Steel, Gray Cast Iron or Ductile Iron shall conform to the shape and dimensions shown in the Drawings and shall be clean substantial castings, free from burnt-on sand and shall be reasonable smooth.
      a. Runners, risers, fins, and other cast-on pieces shall be removed from the castings and such areas ground smooth.
   2. Bearing surfaces between manhole rings and covers or grades and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the facilitate subsequent identification at installation.
   3. Steel Castings
      a. Shall conform to the requirements of specifications for "Mild to Medium Strength Carbon Steel Castings for General Application", ASTM A 27.
      b. Grade 70-36 shall be furnished unless otherwise specified.

4. Cast Iron Castings
    a. Shall conform to the requirements of "Gray Iron Castings", ASTM A 48, Class 30, and AASHTO M 105.
5. Ductile Iron Castings
    a. Shall conform to the requirements of "Ductile Iron Castings", ASTM A 536.
    b. Grade 70-50-05 shall be used otherwise specified.

E. Openings
1. Shall be in accordance with Texas Administrative Code Title 30, Part 1, Chapter 217, Subchapter C, Rule §217.55

F. Manufacturing Facilities
1. Manufacturing facilities shall be domestic in compliance with Local, State, and Federal workplace and environmental regulations.

G. Bolts when required
1. Commercial grade 316 stainless steel bolts and nuts shall be used when indicated on the Drawings or required by the Owner.

2.07 Concrete

A. All concrete and accessories shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES and in accordance with this specification.

B. All concrete and accessories shall be rated for use in high sulfur dioxide conditions.

2.08 Non-Shrink Grout

A. Shall be prepackaged and meet the requirements of ASTM C1107, be flowable, Nonmetallic, Inorganic, Non-gas liberating, Cement based, have a compressive strength of 7000 psi, and requires only the addition of water.

2.09 Concrete Coatings

A. Provide as indicated on the Drawings or approved equal.

2.10 Backfill Materials

A. Shall be in accordance with Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES unless otherwise indicated on the Drawings.

PART 3 - EXECUTION

3.01 General

A. All Work shall be in accordance with the Contract, Specifications, Drawings, manufacturer recommendations, and industry standards.
1. In the event that one requirement conflicts with another the more stringent requirement shall be followed, unless directed otherwise by the Owner.

3.02 Manholes

A. General
1. All concrete work shall be performed in accordance with the requirements of the Section 03 31 11 CONCRETE STRUCTURES, unless otherwise specified.
2. Refer to the Details within the Drawings for additional information regarding execution.
3. Installation Assist Marks
    a. Shall be vertical lines 90 degrees apart at the base of the manhole and at other locations to assist in construction.
    b. Can be applied by Manufacturer and/or by Contractor.
    c. Marks shall be in a color and visible so that the Contractor and Owner can easily determine the use and determine when requirements are met.
    d. Required Marks
        1) Continuous mark around manhole
            a) Minimum embedment into base
            b) Maximum embedment into base
            c) Minimum initial backfill height
        2) Location of dowels (if required)
        3) Location and size of pipe penetrations prior to cut.

B. Excavation
1. As per Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES.

C. Non-monolithic
    1. The tongue and groove joint shall have a gasket material placed between prior to joining and exterior of joint wrapped with geotextile.
D. Wall Preparation for Pipe Penetrations
    1. Cut shall be equal to the outside diameter of pipe to pass through it, plus two-inches (2”), plus gasket to form a non-leak seal.
    2. Cuts are to be made using electric or gasoline powered circular saw with proper blade.
    3. Impact type tools shall not be used.
    4. Where multiple pipe connections occur, maximum wall cutout shall not exceed manufacturer’s recommendations, nor shall be cut leaving less than twelve-inches (12”) between pipes, unless otherwise noted on the Drawings or approved by Owner.
E. Pipe Penetrations
    1. Pipe connection shall be made with gasket material installed in accordance with the manufacturer’s recommendations and the exterior portion shall have geotextile placed across it, unless otherwise noted on the Drawings or approved by the Owner.
F. Pipe Stub outs for Future Connections
    1. Shall be installed where noted on the Drawings and in accordance with the details.
    2. Shall have an approved gasket placed between pipe and manhole.
    3. Gasket shall be installed in accordance with the manufacturer’s recommendations.
    4. A watertight plug shall be installed in the pipe at the end of the pipe and remain until the pipe is connected for future service.
G. Handling
    1. Shall be handled and stored in a safe manner as necessary to prevent damaging either the item or the surroundings.
    2. Manholes shall be lifted as specified by the manufacturer.
        a. If manhole must be moved by rolling, the ground which it transverses shall be smooth and free of rocks, debris, etc.
H. Installation
    1. Shall be installed as specified by the manufacturer and in accordance with this specification and the details.
    2. Field verify all existing elevations and conditions prior to ordering new manholes.
I. Inverts
    1. The inverts passing out or through the manhole shall be shaped and routed across the floor of manhole as shown on the Drawings.
    2. This shaping may be accomplished by adding and shaping mortar or concrete after the base is cast or by placing the required additional material with the base.
J. Concrete and Grout
    1. Concrete
        a. All concrete work shall be completed in accordance with Section 03 31 11 CONCRETE STRUCTURES.
        b. All concrete shall be placed within forms.
    2. Grout
        a. Grout shall be placed in a manner which will not allow for separation of materials.
        b. All exposed grout inside the manhole shall have an approved concrete coating applied to the surface in accordance with the manufacturers’ recommendations.
K. Backfill
    1. Shall be in accordance with Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES unless otherwise indicated on the Drawings.
L. Grade Adjustment Rings
    1. A minimum of twelve-inches (12”) of rings are allowed.
    2. A maximum of eighteen-inches (18”) of rings are allowed.
M. Concrete Collar
    1. Shall be circular or square of size indicated on the Drawings.
    2. Concrete shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES.
    3. Traffic shall be restricted from the traversing across for thirty-six (36) hours after placement of

frame and concrete.

3.03 Inlets

A. General
   1. Shall be constructed from concrete with all concrete work in accordance with the requirements of the Section 03 31 11 CONCRETE STRUCTURES, unless otherwise specified.
   2. Forms will be required for all concrete walls, except where the nature of the surrounding material is such that it can be trimmed to a smooth vertical face.
   3. Inlets for Precast Concrete Pipe Sewers.
      a. The construction of inlets for precast concrete pipe sewers shall be done as soon as is practicable after storm lines into or through inlet locations are completed.
      b. All sewers shall be cut neatly at the inside face of the walls of inlet and cleaned up with mortar.

B. Excavation
   1. As per Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES.

C. Wall Preparation for Pipe Penetrations
   1. Cut shall be equal to the outside diameter of pipe to pass through it, plus two-inches (2”), plus gasket to form a non-leak seal.
   2. Cuts are to be made using electric or gasoline powered circular saw with proper blade.
   3. Impact type tools shall not be used.
   4. Where multiple pipe connections occur, maximum wall cutout shall not exceed manufacturer’s recommendations, nor shall be cut leaving less than twelve-inches (12”) between pipes, unless otherwise noted on the Drawings or approved by Owner.

D. Pipe Penetrations
   1. Pipe connection shall be made with gasket material installed in accordance with the manufacturer’s recommendations and the exterior portion shall have geotextile placed across it, unless otherwise noted on the Drawings or approved by the Owner.

E. Pipe Stub outs for Future Connections
   1. Shall be installed where noted on the Drawings and in accordance with the details.
   2. Shall have an approved gasket placed between pipe and manhole.
   3. Gasket shall be installed in accordance with the manufacturer’s recommendations.
   4. A watertight plug shall be installed in the pipe at the end of the pipe and remain until the pipe is connected for future service.

F. Handling
   1. Shall be handled and stored in a safe manner as necessary to prevent damaging either the item or the surroundings.
   2. Manholes shall be lifted as specified by the manufacturer.
      a. If manhole must be moved by rolling, the ground which it transverses shall be smooth and free of rocks, debris, etc.

G. Installation
   1. Shall be installed as specified by the manufacturer and in accordance with this specification and the details.
   2. Field verify all existing elevations and conditions prior to ordering new manholes.

H. Inverts
   1. The inverts passing out or through the inlet shall be shaped and routed across the floor of inlet as shown on the Drawings.
   2. This shaping may be accomplished by adding and shaping mortar or concrete after the base is cast or by placing the required additional material with the base.

I. Concrete and Grout
   1. Concrete
      a. All concrete work shall be completed in accordance with Section 03 31 11 CONCRETE STRUCTURES.
      b. All concrete shall be placed within forms.
   2. Grout
      a. Grout shall be placed in a manner which will not allow for separation of materials.
      b. All exposed grout inside the manhole shall have an approved concrete coating applied to the surface in accordance with the manufacturers’ recommendations.

J. Backfill
   1. Shall be in accordance with Section 33 05 10 EXCAVATION AND BACKFILL FOR UTILITIES unless otherwise indicated on the Drawings.

3.04 Frames, Grates and Covers

A. Frames, grates, and covers shall be constructed of the materials as specified and in accordance with the details shown on the Drawings and shall be placed carefully to the lines or grades indicated on the Drawings or as directed by the Owner.
B. All welding shall conform to the requirements of the applicable section of the latest American Welding Society Specifications.
C. Apply non-seize graphite or approved equal around all the frame, grate, and/or cover prior to installation.

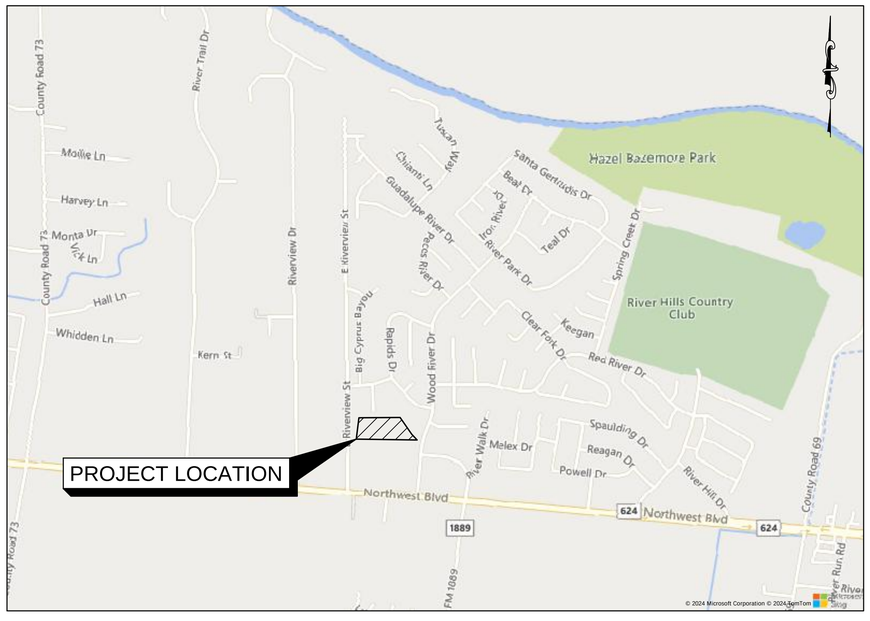
3.05 Grade Adjustment of Existing Fiberglass Manhole

A. Adjustment by Rings
   1. The adjustment of the frame and cover is to be achieved by removal or addition of HDPE grade adjustment rings that rest above the fiberglass corbel.
   2. Butyl Sealant shall be placed between each ring in a manner to form a continuous seal between each ring.
   3. Butyl Sealant shall be placed between the ring and manhole to form a continuous seal.
B. Adjustment by Lowering Top of Manhole
   1. If the frame and cover must be lowered to the extent that the new elevation cannot be achieved by removal of grade adjustment rings and it is necessary to remove a section of the fiberglass manhole, this work shall be done as described below:
      a. All work shall be in accordance with manufacturer recommendations.
      b. Remove the appropriately sized section of the existing manhole from the vertical manhole wall at least six inches (6") below the seam where the corbel meets the vertical wall.
      c. Excavate evenly around the manhole as required.
      d. Mark, cut and remove the required section of the manhole.
         1) Make a square cut as necessary for a good butt splice.
      e. Grind and clean ends of fiberglass that are to be re-united.
      f. Replace and align the top.
      g. Apply new Fiberglass in accordance with Manhole Manufacturer recommendations and the recommendations of the repair kit.
         1) Repair kit shall be of type as required by Manhole Manufacturer.
      h. After curing, backfill in accordance with the backfill requirements for Manholes, the Drawings, and/or as directed by the Owner.
C. Concrete Collar
   1. Shall be circular or square of size indicated on the Drawings.
   2. Concrete shall be in accordance with Section 03 31 11 CONCRETE STRUCTURES.
   3. Traffic shall be restricted from the traversing across for thirty-six (36) hours after placement of frame and concrete.

3.06 Grade Adjustment of Existing Concrete Manhole

A. Shall be in accordance with the Drawings.

CONSTRUCTION PLANS
FOR
CALALLEN ISD WOOD RIVER WALKING TRACK
CORPUS CHRISTI, TEXAS



LOCATION MAP
SCALE: 1" = 1000'

Sheet List Table	
Sheet Number	Sheet Title
1.0	COVER SHEET
1.1	GENERAL NOTES
2.1	SITE DEMOLITION & GENERAL DIMENSION PLAN
2.2	GRADING & STORM SEWER PLAN
3.1	STORM WATER POLLUTION PREVENTION PLAN
4.1	PAVING & STORM DETAILS

THE CITY OF CORPUS CHRISTI STANDARD DETAILS LISTED BELOW HAVE BEEN SELECTED BY MICHAEL C. YORK, P.E., TEX. REG. NO. 124938, AS BEING APPLICABLE TO THIS PROJECT.

CITY OF CORPUS CHRISTI STANDARDS INDEX:

STORM WATER POLLUTION PREVENTION PLAN NOTES, SHEET 1 OF 3
STORM WATER ENVIRONMENTAL PERMITS ISSUED AND COMMENTS (EPIC), SHEET 2 OF 3
STORM WATER POLLUTION PREVENTION PLAN STANDARD DETAILS, SHEET 3 OF 3

NOTE:
CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE MOST CURRENT VERSION OF ABOVE LISTED CITY STANDARDS FROM THE CITY OF CORPUS CHRISTI. CITY STANDARDS LISTED ABOVE ARE PART OF THE CONSTRUCTION DOCUMENTS.

OWNER / DEVELOPER:
CALALLEN INDEPENDENT SCHOOL DISTRICT
4205 WILDCAT DRIVE
CORPUS CHRISTI, TX 78410

CIVIL ENGINEER:
YORK ENGINEERING, INC.
9708 S. PADRE ISLAND DR.
SUITE A200
CORPUS CHRISTI, TX 78418

SURVEYOR:
TEXAS GEO TECH LAND SURVEYING, INC.
5525 S. STAPLES ST., SUITE B2
CORPUS CHRISTI, TEXAS 78411
JARREL L. MOORE
LICENSE # 4854
361-993-0808

CALL BEFORE YOU DIG!
Texas 811 Know what's below. Call before you dig.
PARTICIPANTS REQUEST 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST. STOP AND CALL 811

PREPARED BY:
YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S. PADRE ISLAND DR., SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

STATE OF TEXAS
MICHAEL C. YORK
124938
LICENSED PROFESSIONAL ENGINEER
09 SEPTEMBER 2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL C. YORK, P.E. 124938. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

GENERAL NOTES:

PRELIMINARY MATTERS

1. THE INSTRUCTIONS GIVEN BY THE NOTES ON THIS SHEET DO NOT CONSTITUTE SEPARATE PAY ITEMS UNLESS SPECIFICALLY INCLUDED IN THE PROPOSAL FORM.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS LISTED IN THE CONTRACT DOCUMENTS AND THE STANDARD DETAILS INCLUDED OR REFERENCED IN THE PLANS.
3. ANY CHANGES OR REVISIONS TO THESE PLANS MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
4. THE OWNER/ENGINEER RESERVE THE RIGHT TO MAKE REASONABLE ADJUSTMENTS IN LINE AND/OR GRADE IN ORDER TO AVOID CONFLICTS WITH NON-RELOCATABLE STRUCTURES OR OTHER UTILITIES. THE CONTRACTOR AGREES TO MAKE SUCH REASONABLE ADJUSTMENTS AT NO COST TO OWNER OR ENGINEER.
5. EXISTING PAVING, BUILDINGS, AND OTHER ITEMS SHOWN ON PLANS BUT NOT SPECIFICALLY RELATED TO THE WORK OF THE CONTRACTOR ARE FOR INFORMATIONAL PURPOSES ONLY AND MAY BE SHOWN TO A LESSER ACCURACY OR TO A LESSER DEGREE OF DETAIL THAN THE REMAINDER OF THE PLANS.

DEMOLITION

1. ALL CONSTRUCTION SHALL CONFORM TO STANDARD BUILDING CODE AND CITY ORDINANCES FOR DEMOLITION OF STRUCTURES, SAFETY OF ADJACENT STRUCTURES, DUST CONTROL AND DISPOSAL AS WELL AS ALL FEDERAL, STATE, AND LOCAL HAULING AND DISPOSAL REGULATIONS. CONTRACTOR SHALL OBTAIN REQUIRED PERMITS FROM AUTHORITIES AND NOTIFY AFFECTED UTILITY COMPANIES BEFORE STARTING WORK AND COMPLY WITH THEIR REQUIREMENTS.
2. THE CONTRACTOR SHALL COMPLETELY REMOVE EXISTING STRUCTURES WHICH ARE TO BE ABANDONED TO A DEPTH OF 36 INCHES BELOW FINISHED GRADE. STRUCTURES FALLING WITHIN A BUILDING PAD EXCAVATION SHALL BE REMOVED. ANY REMAINING CAVITY SHALL BE COMPLETELY FILLED WITH LIMESTONE OR SELECT FILL MATERIAL.
3. ALL LINES, PIPES AND UTILITIES LESS THAN 12 INCHES IN DIAMETER MAY BE ABANDONED IN PLACE PROVIDED THEY ARE AT LEAST 24 INCHES BELOW EXISTING OR PROPOSED GRADE IN SITEWORK PARKING AREAS. ALL PIPES, UTILITIES, ETC., ABANDONED IN PLACE SHALL BE GROUT FILLED AND PLUGGED OR CAPPED PER CITY CODE AND THE CITY OR APPROPRIATE UTILITY COMPANY NOTIFIED TO INSURE THAT THE SERVICE IS TERMINATED.
4. THE CONTRACTOR SHALL COMPLETELY REMOVE AND HAUL OFF EXISTING CONCRETE OR FOUNDATION PIERS THAT MAY BE UNCOVERED IN THE AREA AND FILL EXCAVATIONS WITH LIMESTONE OR SELECT FILL MATERIAL.
5. BURIAL OF DEBRIS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL HAUL OFF AND DISPOSE OF ALL DEMOLISHED ITEMS AND DISPOSE OF IN A LEGAL MANNER.

SIDEWALKS AND DRIVEWAYS

1. DRIVEWAY TYPE SHALL BE AS SHOWN ON THE APPROPRIATE CITY DETAILS AS APPLICABLE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CURRENT CITY REGULATIONS GOVERNING DRIVEWAY TYPE.
2. ALL STREET DIMENSIONS SHOWN ON PLANS ARE TO BACK OF CURB, UNLESS NOTED OTHERWISE.
3. WHERE EXISTING ASPHALT AND CONCRETE ARE TO BE CUT, THESE CUTS SHALL BE VERTICAL AND MADE WITH A SAW.
4. CARE SHALL BE TAKEN TO PROTECT CURB & GUTTER AND OTHER CONCRETE SURFACES FROM ASPHALT SPLATTER DURING PRIMING AND SEALING OPERATIONS.
5. HMAC PAVING TRANSITIONS TO EXISTING PAVEMENTS SHALL BE TRANSITIONED OVER 10' TO PRODUCE A SMOOTH RIDE AND SHALL BE CHECKED WITH A 10' STRAIGHT EDGE PRIOR TO COMPLETION. LONGITUDINAL HMAC PAVING JOINT LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
6. CONCRETE PLACEMENT SHALL STOP AT EXPANSION JOINTS IN SIDEWALKS OR AS OTHERWISE DIRECTED BY THE ENGINEER.
7. WHERE PROPOSED CONCRETE TIES INTO EXISTING CONCRETE, CONTRACTOR SHALL PLACE AN EXPANSION JOINT AS SHOWN IN THE PAVING DETAILS.
8. CURB FOR CURB RAMPS SHALL NOT BE PAID FOR DIRECTLY BUT CONSIDERED SUBSIDIARY TO CURB RAMP.
9. THE AREA BETWEEN THE SIDEWALK AND CURB & GUTTER SHALL BE GRADED WITH TOP SOIL THAT IS FREE OF DEBRIS, BASE, ASPHALT, AND CONCRETE AS DIRECTED BY THE ENGINEER.
10. WHEN MATCHING NEW 6" CURB & GUTTER TO EXISTING 4" CURB, THE GUTTER SLOPE SHALL BE MAINTAINED AND THE 2" TRANSITION SHALL BE IN THE CURB SECTION, AS NECESSARY TO PREVENT PONDING WATER. TRANSITION LENGTH SHALL BE 10' MINIMUM.
11. AN ASPHALT IMPREGNATED FIBERBOARD EXPANSION JOINT WITH 2-#4 DOWELS x 18" LONG SHALL BE USED WHERE NEW CURB MATCHES EXISTING.

UTILITIES

1. ELEVATION ADJUSTMENTS FOR NEW MANHOLES AND VALVES SHALL BE CONSIDERED SUBSIDIARY UNLESS NOTED OTHERWISE.
2. ALL NEW AND EXISTING VALVES AND MANHOLES SHALL BE EXTENDED TO FINISH GRADE. THIS ACTIVITY WILL BE CONSIDERED SUBSIDIARY UNLESS NOTED OTHERWISE.
3. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT EXISTING UTILITIES. ALL PIPES AND UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED WITH NO SEPARATE PAYMENT.
4. ALL OPEN EXCAVATION SHALL BE ENCLOSED WITH ORANGE SAFETY FENCE AND BARRELS PER CURRENT SAFETY REGULATIONS.
5. ALL MATERIAL AND LABOR FOR THE ADJUSTMENT TO FINISH GRADE OF ALL NEW MANHOLES AND VALVE BOXES SHALL BE FURNISHED BY THE CONTRACTOR AND NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.
6. UNLESS SHOWN OTHERWISE IN THE PLANS OR SPECIFICATIONS, DEWATERING OF UTILITY LINE AND STORM SEWER WILL NOT BE PAID FOR DIRECTLY BUT CONSIDERED SUBSIDIARY TO THE ITEMS IT MAY BE ASSOCIATED WITH.
7. ALL ASBESTOS-CEMENT PIPE DESIGNATED FOR REMOVAL SHALL BE DISPOSED OF IN STRICT ACCORDANCE WITH LOCAL, STATE & FEDERAL REGULATIONS. DISPOSAL OF AC PIPE WILL NOT BE PAID DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO UTILITY OR DEMOLITION IMPROVEMENTS.
8. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND WERE OBTAINED FROM EXISTING RECORDS AND VISIBLE EVIDENCE ON THE GROUND. IT IS EXPECTED THAT THERE MAY BE SOME DISCREPANCIES AND OMISSIONS IN THE LOCATIONS AND QUANTITIES OF EXISTING UTILITIES AND STRUCTURES SHOWN. THE CONTRACTOR SHALL VERIFY THE DEPTH AND LOCATION OF ALL KNOWN EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT CONFLICTS CAN BE AVOIDED. WHEN AN EXISTING UTILITY OR UNDERGROUND PIPELINE IS ENCOUNTERED, THAT WAS PREVIOUSLY NOT LOCATED OR INCORRECTLY LOCATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE APPROPRIATE UTILITY COMPANY TO OBTAIN PROCEDURAL INSTRUCTIONS. THE CONTRACTOR SHALL COOPERATE WITH THE APPROPRIATE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
9. ADJUSTMENT OF EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SAID ADJUSTMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY AFFECTED AND SHALL BE PERFORMED IN THE PRESENCE OF OFFICIALS OF THE AFFECTED UTILITY AND TO THE AFFECTED UTILITIES STANDARDS AND SPECIFICATIONS. THERE SHALL BE NO SEPARATE PAYMENT FOR SAID ADJUSTMENTS, EXCEPT WHERE SPECIFICALLY DESIGNATED IN THE PLANS.
10. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND REPAIRING ANY UTILITIES DAMAGED AS A RESULT OF OPERATIONS.
11. ALL PIPELINE VALVES SHALL BE ACCESSIBLE AT ALL TIMES.
12. PAVEMENT REPAIR SHALL BE PAID FOR ONLY IF THE REPAIR OCCURS OUTSIDE THE LIMITS OF PROPOSED STREET EXCAVATION.
13. TRENCH RESTORATION, ALONG EXISTING PAVEMENTS THAT ARE SCHEDULED FOR SUBSEQUENT STREET EXCAVATION, SHALL INCLUDE REPLACEMENT OF BASE WITH LOW P.I. MATERIAL THAT IS CONDUCTIVE FOR SALVAGE.
14. WHERE UTILITY AND/OR STORM SEWER WORK IS PERFORMED UNDER AREAS OF THE EXISTING ROADWAY OR TEMPORARY DETOURS THAT ARE REQUIRED TO CARRY TRAFFIC PRIOR TO COMPLETION OF THE STREET IMPROVEMENTS, THE CONTRACTOR SHALL APPLY SURFACE TREATMENT ON TOP OF THE BASE OR BACKFILL MATERIAL UNTIL SUCH TIME THAT THE PROPOSED PAVEMENT SECTION IS CONSTRUCTED. THESE TEMPORARY PAVEMENTS (INCLUDING BACKFILL, BASE MATERIAL AND SURFACE TREATMENT) WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEM TRAFFIC CONTROL.
15. PVC PIPE AND FITTINGS FOR SEWER LINES SHALL BE IN ACCORDANCE WITH ASTM D-3034. PIPE SHALL HAVE AN SDR OF 26. PIPE AND FITTINGS SHALL HAVE PUSH-ON COMPRESSION GASKET JOINTS IN ACCORDANCE WITH ASTM D-3212.
16. PVC PIPE AND FITTINGS FOR WATER LINES SHALL BE A.W.W.A. C-900, CLASS 150, WITH A D.R. OF 18.
17. "FH ASSEMBLY" SHALL ENCOMPASS ALL PIPE, FITTINGS, AND STRUCTURES NECESSARY TO COMPLETE THE FIRE HYDRANT INCLUDING THE TEE ON THE MAIN LINE AND THE VALVE ON THE LEAD LINE. FIRE HYDRANTS WILL BE LOCKED ONTO VALVE BY USE OF RETAINER GLANDS ON DUCTILE IRON PIPE.
18. ALL CURB INLETS SHALL HAVE A 5' THROAT, UNLESS NOTED OTHERWISE.
19. ALL STORM SEWER PIPE SHALL BE CLASS III REINFORCED CONCRETE PIPE WITH TYPE B WALL AND TONGUE-AND-GROOVE JOINTS PER ASTM C-76-20 OR CORRUGATED HDPE DUAL WALL PIPE MANUFACTURED IN ACCORDANCE WITH ASTM F2306/F2306M-19 AND WITH GASKETED WATER TIGHT JOINTS MEETING ASTM D3212-07(2020) UNLESS NOTED OTHERWISE ON THE DRAWINGS. CLASS IV REINFORCED CONCRETE PIPE SHALL BE USED WHERE TOP OF PIPE EXTENDS INTO SUBGRADE OR BASE COURSE.
20. PRE-CAST INLETS, SHALL HAVE CAST-IN-PLACE THROAT AND TOP.
21. A PIPE COLLAR SHALL BE USED WHERE PROPOSED STORM SEWER IS TO BE CONNECTED TO EXISTING STORM SEWER. PIPE COLLARS SHALL NOT BE PAID FOR SEPARATELY BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS. PIPE COLLARS SHALL NOT BE REQUIRED AT TONGUE AND GROOVE CONNECTIONS.
22. ALL CONCRETE PIPE AND BOX JOINTS SHALL REQUIRE PREFORMED PLASTIC SEALING COMPOUND AND JOINT WRAP.
23. ALL CONNECTIONS AND ADJUSTMENTS TO EXISTING GAS LINES SHALL BE PERFORMED BY THE GAS UTILITY PROVIDER AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE GAS UTILITY PROVIDER AND IS RESPONSIBLE FOR PAYING ALL COSTS ASSOCIATED WITH CONNECTIONS OR ADJUSTMENTS.
24. ALL WATER LINES AND FITTINGS 12-INCHES AND SMALLER SHALL HAVE RESTRAINED JOINTS.
25. ALL MANHOLES IN LOCATIONS SUBJECT TO VEHICULAR TRAFFIC SHALL BE HS-20 TRAFFIC RATED.
26. TYPICAL MINIMUM DEPTH OF WATER LINES SHALL BE 36-INCHES TO TOP OF PIPE AND TYPICAL MAXIMUM DEPTH UNDER PAVEMENT SHALL BE 48-INCHES TO TOP OF PIPE.
27. All WATER LINES AND FITTINGS 12-INCHES AND SMALLER SHALL HAVE RESTRAINED JOINTS.
28. WATER LINES SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE IN ACCORDANCE WITH LOCAL STANDARDS.

MISCELLANEOUS

1. CONCRETE SHALL BE SAW CUT WHERE AN EXISTING CONCRETE STRUCTURE IS TO BE PARTIALLY REMOVED.
2. TREE TRIMMING SHALL BE DONE IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE. TREES, TREE STUMPS AND BRUSH WITHIN THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHALL BE REMOVED AND HAULED AWAY.
3. PRIMING AND HOT-MIX PLACING OPERATIONS SHALL NOT BE CONDUCTED ON DAYS FOR WHICH AN OZONE ADVISORY HAS BEEN ISSUED, EXCEPT FOR REPAIRS.
4. REMOVAL OF EXISTING FENCE, IN AREAS TO RECEIVE NEW FENCE, WILL NOT BE PAID FOR DIRECTLY BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS, UNLESS OTHERWISE INDICATED. THE CONTRACTOR SHALL PROVIDE A TEMPORARY FENCE FROM THE TIME AN EXISTING FENCE IS REMOVED TO THE TIME THE PROPOSED FENCE IS REPLACED. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
5. ALL WORK SHALL BE PERFORMED DURING DAYLIGHT HOURS.
6. ALL TRASH SHALL BE PICKED-UP AND REMOVED AT THE END OF EACH DAY.
7. CONTRACTOR SHALL VERIFY ALL SURFACE CONDITIONS OF THE SITE PRIOR TO PREPARING AND SUBMITTING ITS BID.
8. WHERE THE WORD "PROPOSED" OR PROP." IS UTILIZED IN THIS SET OF DOCUMENTS, IT SHALL MEAN "NEW CONSTRUCTION TO BE PERFORMED AS PART OF THIS CONTRACT."
9. FLOWABLE GROUT MATERIAL SHALL BE 'DARAFILL' ADMIXTURE MANUFACTURED BY GRACE CONSTRUCTION PRODUCTS OR APPROVED EQUAL. THE FLOWABLE GROUT SHALL BE SUPPLIED WITH A MIXUTE CONTAINING 100lbs/CY PORTLAND CEMENT, 250lbs/CY WATER, 300lbs/CY FLY ASH, 2100lbs/CY SAND, AND 6oz/CY DARAFILL. MIXTURE SHALL BE PROVIDED BY AN APPROVED READY-MIX SUPPLIER. THE MANUFACTURER'S REPRESENTATIVE SHALL BE CONSULTED FOR ANY FINAL ADJUSTMENTS TO IMPROVE FOR FLOWABLITY OF THE MIXTURE.

TRAFFIC

1. IF CONTRACTOR DISTURBS TRAFFIC BY OCCUPYING TRAFFIC LANES WITH CONSTRUCTION EQUIPMENT OR DELIVERY VEHICLES CONTRACTOR IS RESPONSIBLE FOR ACQUIRING APPROVAL OF A TRAFFIC CONTROL PLAN PERMIT FROM THE CITY TRAFFIC ENGINEER AND IT MUST BE IN CONFORMANCE WITH CURRENT "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (TMUTCD). THIS INCLUDES THE CONSTRUCTION OF DRIVEWAYS AND CURB & GUTTER IN PUBLIC RIGHT OF WAYS.
2. ALL WEATHER VEHICULAR ACCESS TO LOCAL RESIDENTS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
3. THE CONTRACTOR SHALL MAINTAIN AND PROVIDE SUITABLE TEMPORARY DRAINAGE UNTIL SUCH TIME AS PERMANENT DRAINAGE STRUCTURES ARE COMPLETED. THE EXPENSE FOR PROVIDING SAID SUITABLE TEMPORARY DRAINAGE, INCLUDING CONSTRUCTION OF TEMPORARY SWALES, INSTALLATION AND REMOVAL OF TEMPORARY PIPES AND OTHER ASSOCIATED WORK WILL NOT TO BE PAID FOR SEPARATELY BUT SHALL BE SUBSIDIARY.
4. THE CONTRACTOR SHALL COORDINATE WITH THE CITY TRAFFIC ENGINEERING DEPARTMENT REGARDING RELOCATION OR REPLACEMENT OF EXISTING SIGNS (STOP SIGNS, BUS ROUTE SIGNS, ETC.) AS MAY BE REQUIRED.

NOTIFICATION REQUIREMENTS

1. AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR IS REQUIRED TO NOTIFY TEXAS 811 AT 1-800-344-8377.
2. THE CONTRACTOR SHALL GIVE A MINIMUM OF 48 HOURS NOTICE TO THE OWNER, ENGINEER, AND PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK.
3. THE CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY SERVICES (I.E. FIRE, E.M.S., AND POLICE) OF ANY CONSTRUCTION ACTIVITIES THAT WOULD AFFECT THE NORMAL FLOW OF TRAFFIC.
4. THE CONTRACTOR SHALL GIVE A MINIMUM OF 48 HOURS NOTICE TO THE ENGINEER AND AUTHORIZED TESTING LABORATORY PRIOR TO REQUIRED TESTS.

CONTRACTOR'S RESPONSIBILITIES

1. THE CONTRACTOR SHALL COORDINATE ALL SERVICE SHUT DOWNS WITH THE APPROPRIATE UTILITY DEPARTMENT CONSTRUCTION OBSERVER AT LEAST 48 HOURS PRIOR TO THE ANTICIPATED UTILITY SERVICE SHUT DOWN.
2. THE CONTRACTOR SHALL COORDINATE WITH ALL AFFECTED PROPERTY OWNERS IN WRITING AT LEAST 24 HOURS PRIOR TO ANY ANTICIPATED UTILITY SERVICE SHUT DOWN. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF ALL WRITTEN CORRESPONDENCE.
3. THE CONTRACTOR SHALL COORDINATE INSPECTIONS WITH THE UTILITY DEPARTMENT INSPECTOR 48 HOURS PRIOR TO ALL WORK BEING COVERED.
4. THE CONTRACTOR SHALL ADVISE THE OWNER AND THE ENGINEER IMMEDIATELY, VERBALLY AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING OF FUELS, WASTE MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.
5. THE CONTRACTOR SHALL COORDINATE INTERRUPTIONS OF ALL UTILITIES AND SERVICES WITH APPLICABLE UTILITY COMPANY, OWNER, AND TENANT. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY COMPANY OR AGENCY INVOLVED.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING INGRESS AND EGRESS FOR ALL PUBLIC AND PRIVATE FACILITIES AT ALL TIMES AND FOR ALL WEATHER CONDITIONS. UNLESS OTHERWISE INDICATED ON THE PLANS OR APPROVED BY THE ENGINEER.
7. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDED AND MAINTAIN ALL NECESSARY WARNING AND SAFETY DEVICES (FLASHING LIGHTS, FLAG MEN, BARRICADES, SIGNS, ETC.) TO PROTECT THE PUBLIC SAFETY AND HEALTH UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED BY THE ENGINEER AND OWNER. ALL BARRICADING SHALL BE DONE IN COMPLIANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
8. THE CONTRACTOR SHALL MAINTAIN ALL REGULATORY SIGNS DURING THE CONSTRUCTION PERIOD.
9. THE CONTRACTOR SHALL ASSURE HIMSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK. REQUIRED PERMITS THAT CAN ONLY BE ISSUED TO CONTRACTOR ARE TO BE OBTAINED AT THE CONTRACTOR'S EXPENSE.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING SANITARY FACILITIES ON THIS PROJECT FOR EMPLOYEES.
11. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE FLOW IN ALL DITCHES AND STORM SEWER AT ALL TIMES.
12. THE CONTRACTOR SHALL PLACE AND COMPACT BACKFILL AS PROMPTLY AND PRACTICABLE AS POSSIBLE AFTER COMPLETION AT EACH STRUCTURE OR PORTION OF A STRUCTURE.
13. PRIOR TO THE ACCEPTANCE OF THE PROJECT, ALL GRADED AND DISTURBED AREAS ARE TO BE RESTORED TO ORIGINAL OR BETTER CONDITION IN ACCORDANCE WITH THE SPECIFICATIONS. DISTURBED AREAS OUTSIDE LANDSCAPED AREAS SHALL BE SEEDED, FERTILIZED, AND STABILIZED PER TxDOT ITEMS 164 (URBAN SEED MIX) AND 166.
14. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF ALL EXCESS CONSTRUCTION AND WASTE MATERIALS. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS REGARDING THE HANDLING AND DISPOSAL OF EXCESS AND WASTE MATERIALS.
15. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE.
16. THE CONTRACTOR SHALL TAKE ALL DUE PRECAUTIONS TO PROTECT EXISTING FACILITIES (INCLUDING ROADWAYS, PARKING AREAS, DRIVEWAYS, STRUCTURES, UTILITIES, ETC.) FROM DAMAGE. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF THE CONSTRUCTION OPERATIONS ARE TO BE REPAIRED IMMEDIATELY BY THE CONTRACTOR TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE THE DAMAGE WAS DONE. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE FACILITY OWNER AND THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
17. THE CONTRACTOR SHALL LOCATE, PROTECT AND MAINTAIN BENCHMARKS, MONUMENTS AND CONTROL POINTS. THE CONTRACTOR SHALL RE-ESTABLISH DISTURBED OR DESTROYED ITEMS AT HIS EXPENSE. THE RE-ESTABLISHMENT SHALL BE PERFORMED UNDER THE DIRECTION OF A TEXAS REGISTERED PROFESSIONAL LAND SURVEYOR.
18. IF EXISTING ELECTRICAL LINES ARE LOCATED CLOSE TO THE PROJECT THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS CONCERNING OPERATIONS IN THE VICINITY OF ELECTRICAL LINES AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES.
19. WHERE WATER LINES AND SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES OR WATER LINES NEXT TO MANHOLE(S), THE INSTALLATION WILL MEET THE REQUIREMENTS OF 30 TAC 317.13, APPENDIX E (DESIGN CRITERIA PRIOR TO 2008), 30 TAC 217.53 (CONVENTIONAL COLLECTION SYSTEMS), AND 30 TAC 290.44(e) (WATER HYGIENE).
20. WATER NECESSARY FOR CONSTRUCTION SHALL BE PROVIDED AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL ARRANGE FOR A METERED CONNECTION(S) AND SHALL PROVIDE THE PROPER EQUIPMENT TO PREVENT CROSS-CONNECTION.
21. IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF LICENSING & REGULATION (TDLR) REQUIREMENTS, ENGINEER WILL SUBMIT THESE PLANS, AS MAY BE REQUIRED, TO A REGISTERED ACCESSIBILITY SPECIALIST (RAS) FOR REVIEW OF COMPLIANCE WITH TEXAS ACCESSIBILITY STANDARDS (TAS). FINAL INSPECTION BY RAS IS REQUIRED PRIOR TO ACCEPTANCE OF PROJECT BY OWNER. CONTRACTOR IS RESPONSIBLE FOR CORRECTING ANY IMPROVEMENTS WHICH ARE OUT OF COMPLIANCE WITH TAS. CONTRACTOR IS NOT RESPONSIBLE FOR EXISTING IMPROVEMENTS WHICH ARE NOT DISTURBED.
3. CONTRACTOR SHALL MARK ALL APPROVED CHANGES IN RED ON FIELD DRAWINGS AND DELIVER RED LINES TO ENGINEER UPON CONSTRUCTION COMPLETION FOR THE PURPOSES OF PRODUCING RECORD DRAWINGS.

SURVEY

1. HORIZONTAL CONTROL BASED ON GPS, NAD83, STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH ZONE 4205.
2. VERTICAL CONTROL IS BASED ON NAVD88.

CITY OF CORPUS CHRISTI

1. CITY OF CORPUS CHRISTI CONSTRUCTION SPECIFICATIONS ARE TO BE USED ON THIS PROJECT FOR ANY PUBLIC IMPROVEMENTS.
2. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION OF THE CITY OF CORPUS CHRISTI CONSTRUCTION INSPECTION DEPARTMENT AT 361-826-3240 AT LEAST THREE WORKING DAYS IN ADVANCE OF COMMENCING ANY WORK ON PUBLIC IMPROVEMENTS OR TYING INTO ANY PUBLIC FACILITIES.
3. CONTRACTOR SHALL MARK ALL APPROVED CHANGES IN RED ON FIELD DRAWINGS AND DELIVER RED LINES TO ENGINEER UPON CONSTRUCTION COMPLETION FOR THE PURPOSES OF PRODUCING RECORD DRAWINGS.
4. A PERMIT IS REQUIRED FOR ANY EXCAVATION WITHIN THE PUBLIC RIGHT-OF-WAY. EXCAVATION MEANS AN ACTIVITY THAT CUTS, PENETRATES, OR BORES UNDER ANY SURFACE FOR STREET, SIDEWALK, SURFACE DRAINAGE, OR RELATED PUBLIC TRANSPORTATION INFRASTRUCTURE PURPOSES, PERMITS WILL NOT BE ISSUED FOR EXCAVATION IN ANY PUBLIC RIGHT-OF-WAY THAT HAS BEEN CONSTRUCTED, RECONSTRUCTED, REPAVED, OR RESURFACED IN THE PRECEDING FIVE YEARS FROM THE DATE OF ACCEPTANCE BY THE PUBLIC WORKS CONSTRUCTION ENTITY.
5. ALL CONSTRUCTION PROCEDURES, TESTING PROCEDURES AND CONSTRUCTION MATERIALS AND APPURTENANCES SHALL ADHERE AND BE IN COMPLIANCE OF THE LATEST REVISIONS OF THE CITY OF CORPUS CHRISTI INFRASTRUCTURE DESIGN MANUAL, UNIFIED DEVELOPMENT CODE, CODE OF ORDINANCES, TCEQ AND ANY OTHER LOCAL, STATE AND FEDERAL CODE OF JURISDICTION OF THIS PROJECT FOR THE DURATION OF THE PROJECT.
6. THESE PLANS HAVE BEEN DEVELOPED AND ENGINEERED TO MEET ALL LOCAL, COUNTY, STATE AND FEDERAL CODES INCLUDING BUT NOT LIMITED TO THE LATEST ADOPTION OF THE IDM, CODE OF ORDINANCES CITY OF CORPUS CHRISTI, ICC, TCEQ AT THE TIME OF SIGNING AND SEALING BY ENGINEER.
7. THIS PROJECT REQUIRES INSPECTION BY A REGISTERED ACCESSIBILITY SPECIALIST (RAS) FOR COMPLIANCE WITH TAS/ADA REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH RAS TO ALLOW FOR INSPECTIONS AS REQUIRED. ENGINEER IS RESPONSIBLE FOR PROJECT REGISTRATION AND CLOSE OUT PAPERWORK.

NO.	REVISIONS	DATE

STATE OF TEXAS
MICHAEL C. YORK
124938
LICENSED
PROFESSIONAL ENGINEER
09 SEPTEMBER 2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL C. YORK, P.E. 124938. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S. PADRE ISLAND DR., SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

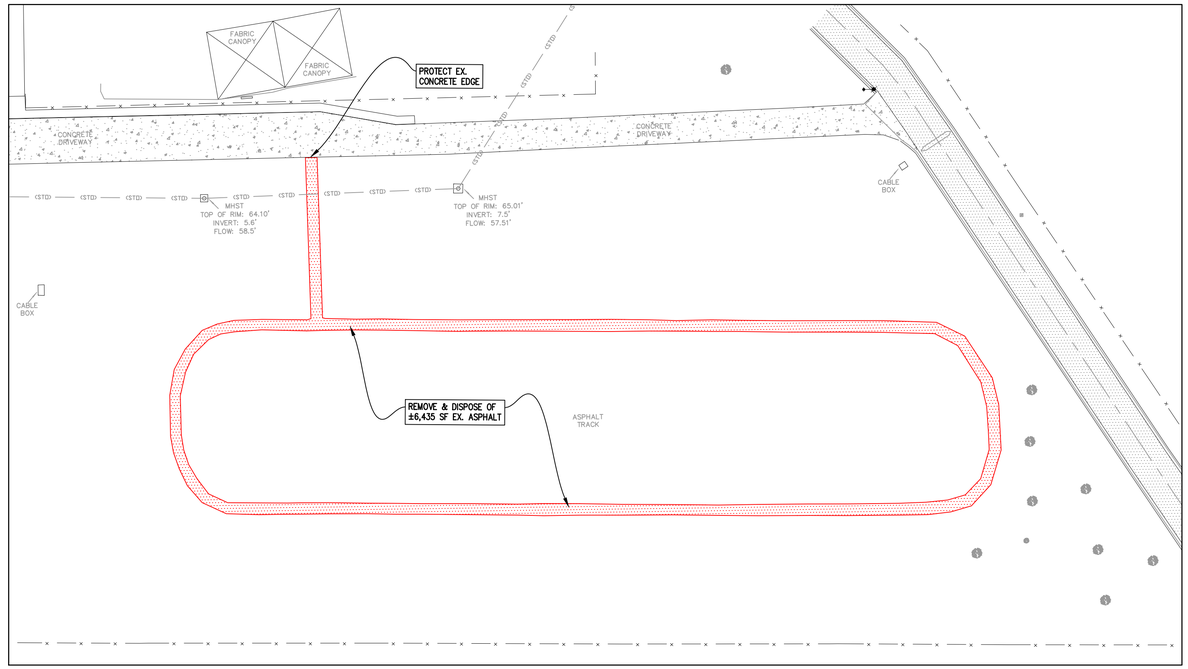
GENERAL NOTES

CALALLEN ISD WOOD RIVER WALKING TRACK

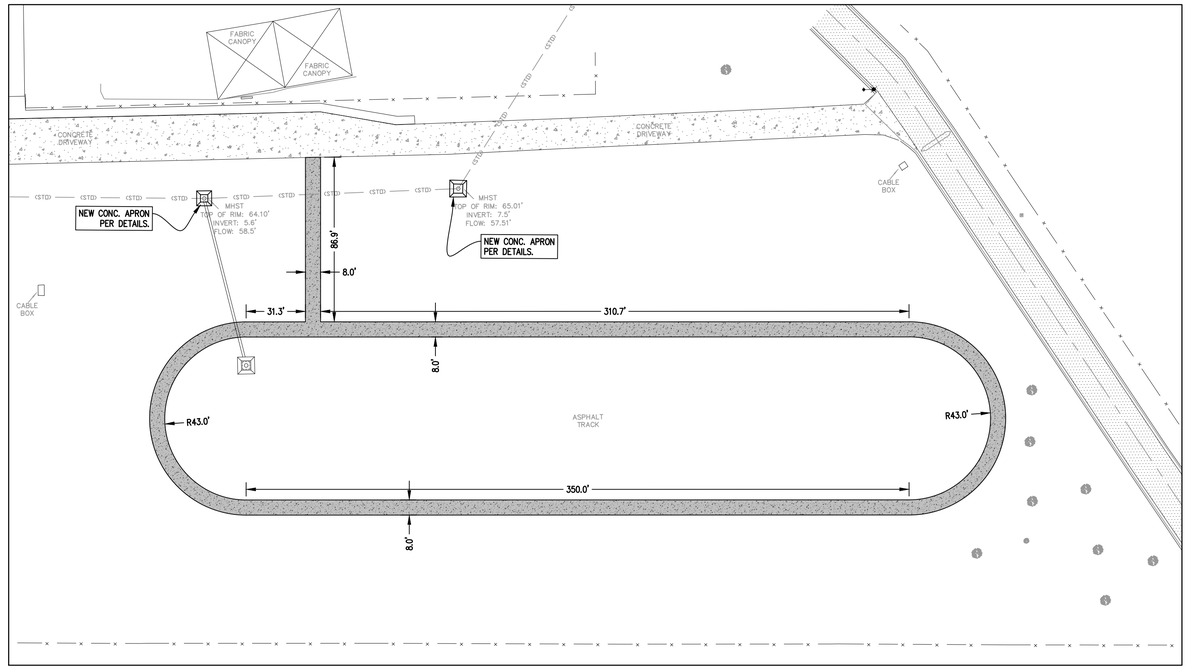
CORPUS CHRISTI, TEXAS

PROJECT NO. 1099-24-03

SHEET: 1.1



SITE DEMOLITION PLAN



GENERAL DIMENSION PLAN

0 20 40 80
GRAPHIC SCALE
1"=40'

LEGEND

- EXISTING ASPHALT
- EXISTING CONCRETE
- CONCRETE SIDEWALK

NO.	REVISIONS	DATE

STATE OF TEXAS
MICHAEL C. YORK
124938
LICENSED
PROFESSIONAL ENGINEER
09 SEPTEMBER 2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL C. YORK, P.E. 124938. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S. PADRE ISLAND DR., SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

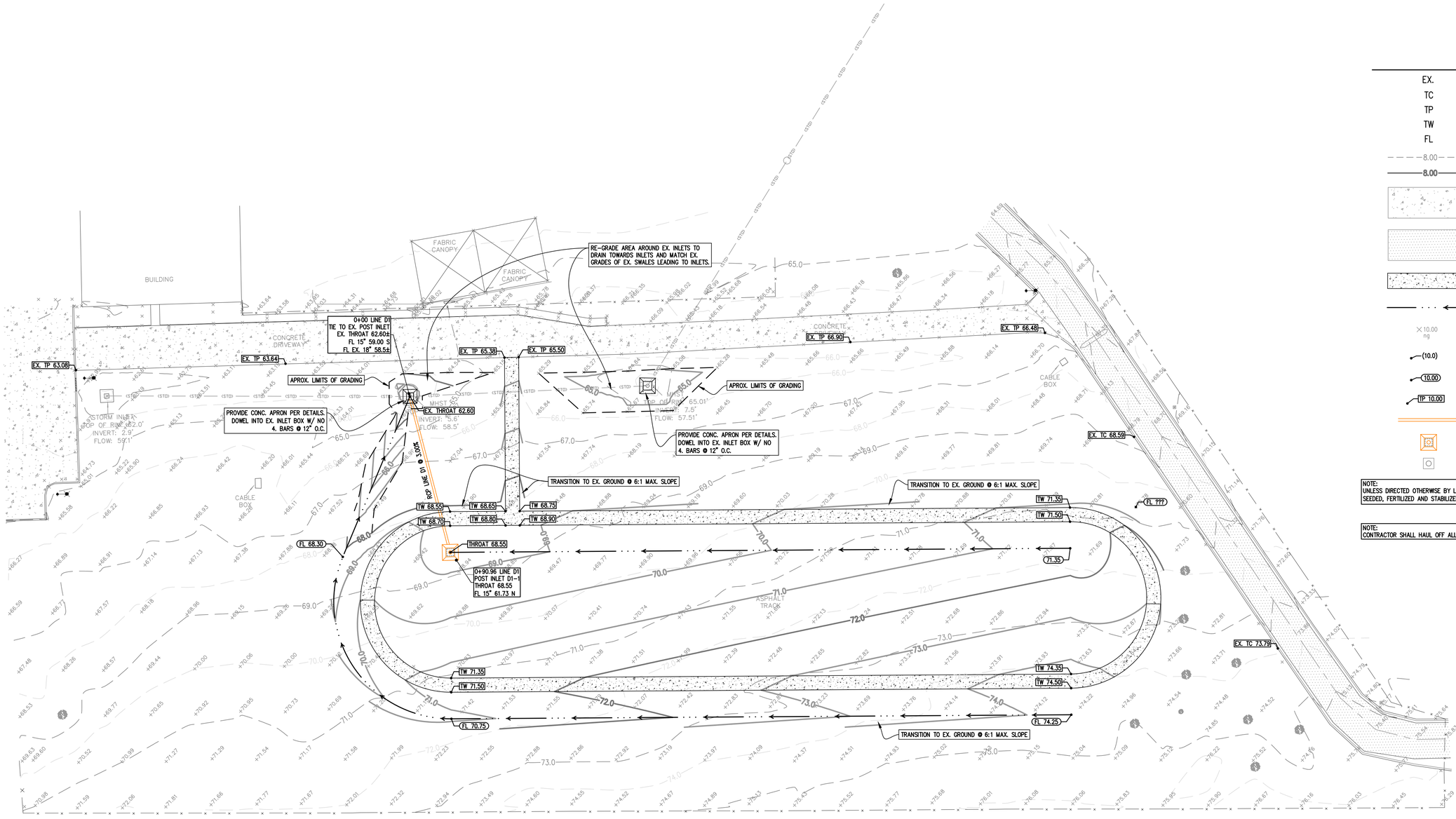
SITE DEMOLITION & GENERAL DIMENSION PLAN

CALALLEN ISD WOOD RIVER WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO. 1099-24-03

SHEET: 2.1



0 15 30 60
GRAPHIC SCALE
1"=30'

LEGEND

EX.	EXISTING
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TW	TOP OF WALK
FL	FLOW LINE
8.00	EXISTING CONTOUR
8.00	PROPOSED CONTOUR
	EXISTING CONCRETE PAVEMENT
	EXISTING ASPHALT PAVING
	CONCRETE SIDEWALK
	SWALE
×10.00 ng	EXISTING SPOT ELEVATION
(10.0)	EXISTING SPOT ELEVATION
10.00	GROUND SPOT ELEVATION
TP 10.00	PAVEMENT SPOT ELEVATION
	PROPOSED STORM PIPE
	POST INLET
	EXISTING POST INLET

NOTE:
UNLESS DIRECTED OTHERWISE BY LANDSCAPE PLAN, ALL DISTURBED AREAS SHALL BE SEEDED, FERTILIZED AND STABILIZED PER TxDOT ITEMS 164 (URBAN SEED MIX) AND 166.

NOTE:
CONTRACTOR SHALL HAUL OFF ALL SPOILS MATERIALS.

NO.	REVISIONS	DATE

THE STATE OF TEXAS
MICHAEL C. YORK
124938
LICENSED
PROFESSIONAL ENGINEER
09 SEPTEMBER 2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL C. YORK, P.E. 124938. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S. PADRE ISLAND DR., SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

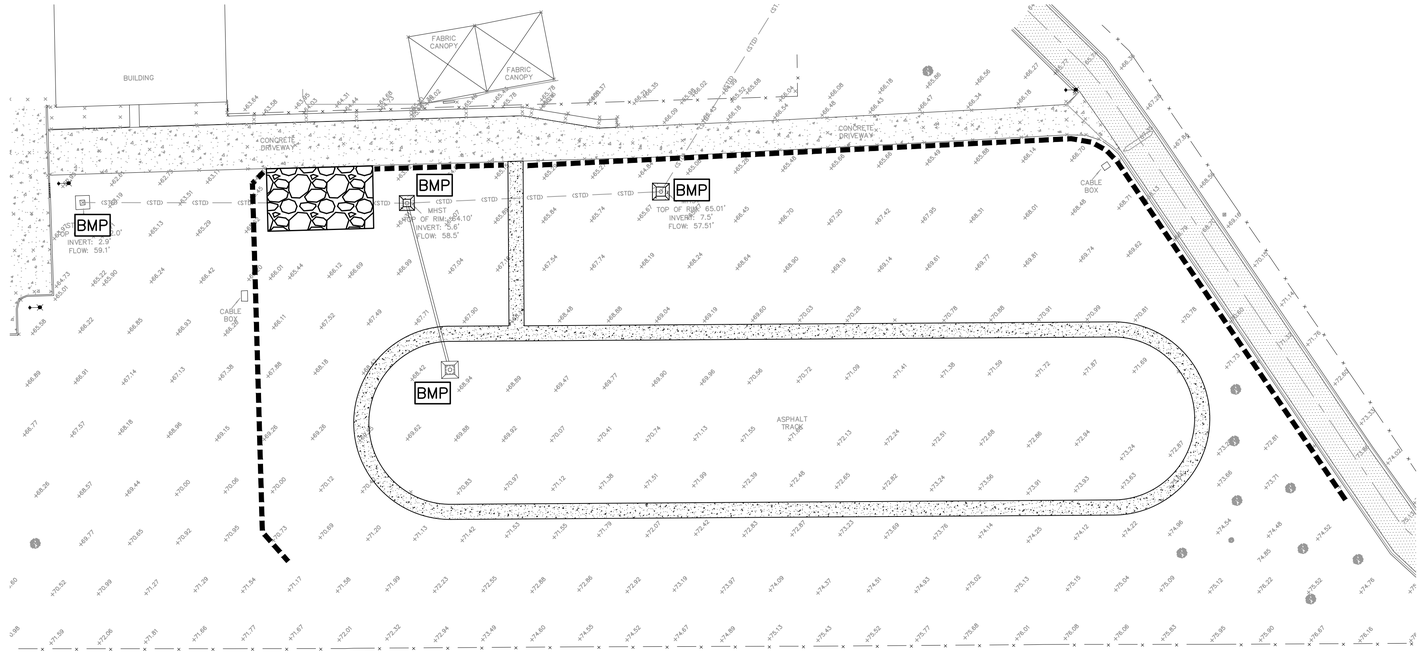
GRADING & STORM SEWER PLAN

CALALLEN ISD WOOD RIVER WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO.
1099-24-03

SHEET:
2.2



0 20 40 80

GRAPHIC SCALE
1"=40'

LEGEND

- 815 LF SILT FENCE
- BMP — BEST MANAGEMENT PRACTICE.
- STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES:

1. THIS PLAN FOLLOWS THE OUTLINE PROVIDED TO MEET THE REQUIREMENTS OF STATE REGULATIONS CONCERNING STORM WATER MANAGEMENT.
2. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING SWPPP AND MONITORING OVER THE COURSE OF THE PROJECT. CHANGES, MAINTENANCE AND UPDATING OF FEATURES AND PLANS WILL BE REQUIRED. MEASURES DEPICTED PRESENT POTENTIAL MEASURES NEEDED. CONTRACTOR SHALL MODIFY AS NECESSARY AND DOCUMENT CHANGES AS REQUIRED PER THE GENERAL CONSTRUCTION PERMIT.
3. CONTRACTOR, OR OPERATOR OF THE SITE AS DEFINED BY TCEQ, SHALL COMPLETE THE FORMS PROVIDED ON THE CITY STANDARD POLLUTION PREVENTION DETAIL SHEETS AS NEEDED FOR COMPLIANCE WITH THE GENERAL PERMIT.
4. ALL POLLUTION CONTROL MEASURES SHALL COMPLY WITH ALL REQUIREMENTS OF CITY OF CORPUS CHRISTI ORDINANCE NO. 022941, STORM WATER QUALITY MANAGEMENT PROGRAM.

SITE DESCRIPTION

A. Project Location: Corpus Christi, Texas at the Calallen ISD Wood River Elementary School.
B. Project Description: Construction of a walking track
C. Major Soil Disturbing Activities: Site grading, utility trenching
D. Project Area: 1.63 acres
E. Total Area to be Disturbed: 1.63 acres
F. Weighted Runoff Coefficient (Post-Development): 0.35
G. Existing Condition of Soil & Vegetative Cover: Average grass surface ±90% vegetative cover
H. Name of Receiving Waters: Nueces River Basin
I. There are no special flood hazard areas or velocity zone boundaries within the site.
J. There are no known environmentally sensitive areas, natural water bodies, jurisdictional wetlands, endangered species habitat, state submerged lands, or critical dunes on the site.
I. Owner:_____
J. Construction Contractor:_____

BEST MANAGEMENT PRACTICES (BMP)

B. Erosion Controls: The existing vegetation must be preserved to the greatest extent possible. The areas disturbed by construction will be seeded to provide stabilization and prevent erosion. The stabilization measures shall be implemented as soon as practicable in portions of the site where construction activities have ceased. Stabilization practices must be implemented no later than 14 days after the construction activities in any portion of the site have ceased. The above timing for stabilization practices does not apply to the following; areas where construction activity will resume in the area within 21 days, or in arid, semi arid or drought stricken areas. In these areas the stabilization measures will take place as soon as practicable. Other erosion control measures which may be implemented include but are not limited to: Temporary Vegetation, Blankets/Matting, Mulch, Sod, Interceptor Swale, Diversion Dike, Erosion Control Compost, Mulch Filter Berms and Socks, and Compost Filter Berms and Socks.
C. Sedimentation Controls: Sedimentation controls will be implemented to retain sediment onsite and minimize offsite transport to the extent practicable. Silt fence will be installed on the slopes to prevent sediment from entering the un-named tributaries of the Nueces River and the Choke Canyon Reservoir during construction. Sediment must be removed no later than the time that the capacity of the control is reduced by 50%. If sediment escapes from the site the accumulations must be removed at a frequency so as to minimize further negative effects and whenever feasible prior to the next rain. Other sedimentation controls which may also be used include but are not limited to: Sand Bag Berm, Rock Berm, Brush Berms, Mulch Filter Berms and Socks, Compost Filter Berms and Socks, Silt Fence, Hay Bale Dike, Triangular Filter Dike, Stone Outlet Sediment Traps, Sediment Basins, and Erosion Control Compost.
D. Post-Construction TSS Control: A sod filter strip will be placed along the toe of slope of the disturbed areas in the vicinity of the un-named tributaries of the Nueces River and Choke Canyon Reservoir to reduce the total suspended solids load in the storm water runoff. Other post-construction TSS control measures which may be implemented include but are not limited to: Retention/Irrigation, Constructed Wetlands, Extended Detention Basin, Wet Basins, Vegetative Filter Strips, Vegetation Lined Drainage Ditches, Grassy Swales, Sand Filter Systems, Erosion Control Compost, Mulch Filter Berms and Socks, and Compost Filter Berms and Socks.
   1. Waste Disposal: Waste disposal must be accompanied in a manner so that no solid wastes. including building materials, hazardous substances, oil, or packaging leave the site, except for disposal at an appropriate, approved solid waste management facility, in conformance with the Texas solid waste disposal act. To the extend practicable, no solid waste, including building materials, hazardous substances, or oil may be allowed to enter the municipal separate storm sewer system, the public streets, of the navigable waters of the united states. building materials include, but are not limited to, uncovered stockpiles of soil, sand, dry cement, lumber, bricks, or other products used in construction. The operator of the site is responsible for all subcontractors with regards to disposal of wastes generated by the construction activities at the site.
   2. Waste Materials: All waste materials will be collected and stored in a securely lidded metal Dumpster rented from a reputable disposal company licensed for solid waste disposal. The Dumpster will meet all local, State and Federal solid waste management regulations. All trash and construction debris from the site will be disposed in the Dumpster. The Dumpster will be emptied as necessary and the trash hauled to a permitted waste disposal site. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. The Pollution Prevention Plan will be posted in the office trailer and the Construction Superintendent will be responsible for seeing that these procedures are followed.
   3. Hazardous Waste: All hazardous waste materials will be disposed of in the manner as required by City, State or Federal regulations or by the materials manufacturer. All personnel will be instructed regarding the correct procedure for handling hazardous waste and the Construction Superintendent will be responsible for seeing that these procedures are followed.
   4. Sanitary Waste: All sanitary waste will be collected from portable units as necessary and/or required by governing regulations. Collection will be by a licensed or permitted Disposal Company and the waste properly disposed of.

A. Offsite Vehicle Tracking: Stabilized construction entrances will be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept daily to remove any excess mud, dirt, or rock tracked from the site.
B. Sprinkling for Dust Control: The Contractor shall provide water as needed to sprinkle areas in order to control and minimize the generation of dust.

MAINTENANCE & INSPECTION PROCEDURES

A. General: All erosion, sedimentation, post-construction TSS and other protective measures identified must be maintained in effective operating condition. If during the regular inspections the permittee notes that the measures are not performing as intended then maintenance must be performed before the next storm event. Any measure that has been rendered ineffective due to construction activity must be replaced or corrected immediately.
B. Maintenance and Inspection Practices for Erosion, Sedimentation and Post-Construction TSS Controls:
   1. Where possible, the site work will be performed in phases leaving certain areas undisturbed as the work progresses.
   2. All control measures will be inspected at least once each week and within 24 hours of any storm event of 0.5 inches or greater.
   3. All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.
   4. Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
   5. Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
   6. Earthen dikes, sediment traps and check dams will be inspected to verify they are functioning as originally constructed.
   7. Temporary and permanent seeding, planting, mulching, sod stabilization and sod filter strips will be inspected for bare spots, washouts and healthy growth.
   8. A maintenance inspection report will be made after each inspection.
   9. The Construction Superintendent will select one individual who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.
   10. Personnel selected for inspection and maintenance responsibilities will receive training from the Construction Superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on site in good working order.
   11. Inspection report with certification for compliance should be retained for at least three years.

MATERIALS AND SUBSTANCES

A. The following materials or substances are expected to be present onsite during construction: Lumber, PVC pipe, Ductile iron Pipe Fittings, Concrete materials and reinforcing steel, Polyethylene pipe and products, Petroleum and asphalt products, Paint, Fertilizer, Herbicides.

MANAGEMENT PRACTICES

A. General Material Management Practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. The following good housekeeping practices will be followed onsite during the construction project:
   1. An effort will be made to store only enough product required to do the job.
   2. All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
   3. Products will be kept in their original containers with the original manufacturer's label.
   4. Substances will not be mixed with one another unless recommended by the manufacturer.
   5. Whenever possible, all of a product will be used up before disposing of the container.
   6. Manufacturers' recommendations for proper use and disposal will be followed.
   7. The site superintendent will inspect daily to ensure proper use and disposal of materials onsite.
   8. Dust control shall be provided at whatever frequency required to maintain compliance with federal, state, and local ordinances and the TPDES General Permit.

B. Hazardous Products Management Practices that will be used to reduce the risks associated with hazardous materials.
   1. Products will be kept in original containers unless they are not reseatable. All chemicals, paints, solvents, fertilizers, and other toxic materials must be stored in sealable waterproof containers.
   2. Except during applications, the contents must be kept in trucks or in storage facilities.
   3. Original labels and material safety data will be retained as they contain important product information.
   4. Runoff containing hazardous materials shall be collected, removed form the site, and disposed of at an approved solid waste or chemical disposal facility. If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal would be followed.

C. Product Specific Practices
   1. Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.
   2. Fertilizers: Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
   3. Herbicides: Herbicides used will be applied only in the minimum amounts recommended by the manufacturer. Applications shall be accomplished only at times when wind will not cause over spray. Storage will be in a covered shed. Partially used containers of herbicides will be tightly reseated.
   4. Paints: All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or State and local regulations.
   5. Concrete Trucks: Contractor may not allow the owner of a concrete truck to wash out or discharge surplus concrete or drum wash water at a construction site, unless the surplus concrete or drum wash water in concrete trucks is discharged at a facility on the construction site that will retain all concrete wash waters or leachates, including any wash waters or leachates mixed with storm water. concrete wash waters and leachates may not be allowed to enter the municipal separate storm sewer system, public streets, waters of the unites states, or ground water. The Contractor will remove this waste material at the completion of the project.

D. Additional management practices for spill prevention and cleanup:
   1. Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and location of the information and cleanup supplies.
   2. Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
   3. All spills will be cleaned up immediately after discovery.
   4. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
   5. Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.
   6. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
   7. The Construction Superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least one other site personnel who will receive spill prevention and cleanup training; this individual will become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

NO.	REVISIONS	DATE

THIS PLAN IS A NON-SEALED WORKING DRAWING PREPARED UNDER THE SUPERVISION OF MICHAEL C. YORK, P.E., TEXAS LICENSE NO. 124938. CHANGES, AND UPDATING OF FEATURES ON THIS PLAN WILL BE REQUIRED. MEASURES DEPICTED PRESENT POTENTIAL MEASURES NEEDED. CONTRACTOR SHALL MODIFY AS NECESSARY AND DOCUMENT CHANGES AS REQUIRED PER THE GENERAL CONSTRUCTION PERMIT. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING SWPPP AND MONITORING OVER THE COURSE OF THE PROJECT.

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S. PADRE ISLAND DR., SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

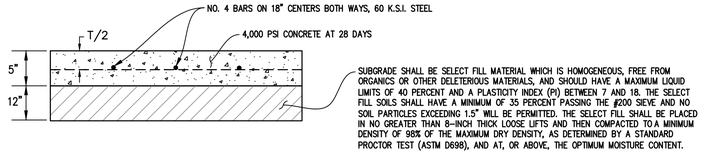
STORM WATER POLLUTION PREVENTION PLAN

CALALLEN ISD WOOD RIVER WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO. 1099-24-03

SHEET: 3.1

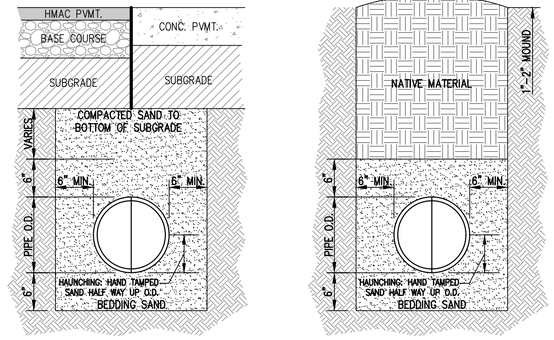


CONCRETE WALKING TRACK SECTION DETAIL

N.T.S.

GENERAL NOTES:

1. CONCRETE FOR PAVEMENT, BLOCK CURB, AND CURB & GUTTER SHALL BE 4000 P.S.I., ALL STEEL GRADE 60 fy= 60,000 P.S.I., MIN
2. ALL REINFORCING STEEL LAPS SHALL BE 30 BARS DIAMETERS. BAR LENGTHS SHALL BE SUCH TO PROVIDE A CLEARANCE OF AT LEAST 2" ALONG PAVEMENT EDGES AND AT JOINTS WHERE THE REINFORCING STEEL IS NOT TO BE CONTINUOUS.
3. REINFORCING STEEL SHALL BE SUPPORTED DURING CONSTRUCTION TO MAINTAIN NOT LESS THAN 3 INCHES AND NOT GREATER THAN 4 INCHES COVER FROM TOP OF SLAB.
4. EXPANSION JOINT SEALANT SHALL BE G SEAL 605 OR 628 AS MANUFACTURED BY GREENSTREAK OR APPROVED EQUAL. POLYURETHANE JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM C920-87, TYPE S OR M, GRADE P, CLASS 25 USES T,M,A AND O. SHALL BE USED IN ALL CONTRACTION JOINTS AND EXPANSION JOINTS WHERE CAP SEAL IS NOT FEASIBLE. WHERE GRADE IS GREATER THAN 3% SLOPE USE BOSTIK 900 SEALANT.SEALANT NOT REQUIRED AT CAP SEAL JOINTS.
5. TRANSVERSE GROOVES 1/8" WIDE BY 1/2" DEEP SHALL BE MADE IN ALL CURB & GUTTER AND HEADER CURB AT 10' O.C. (MAXIMUM).
6. FOR ALL CURB, 3/4" THICK EXPANSION JOINTS SHALL BE PROVIDED AT 40'-0" CENTERS (MAXIMUM). REINFORCEMENT SHALL CONSIST OF THE NO. 4 DOWELS X 12" LONG SPACED AT 18" O.C. (MAX.) THE NO. 4 DOWEL SHALL BE EXTENDED ACROSS THE JOINT 6 INCHES AND THIS END SHALL BE SLEEVED OR GREASED. EPOXY SET DOWEL WHEN CONNECTING TO EXIST. CONCRETE.
7. WHERE NEW CURB & GUTTER OR HEADER CURB JOINS EXISTING CURB & GUTTER, TRANSITION THE LAST 10' OF THE NEW TO MATCH THE OLD IN SHAPE.
8. FOR HEADER CURB NO. 4 DOWEL, MACHINE DRILL A 4" DIA. HOLE AT 4 FEET O.C. (MAX.) AFTER ASPHALT IS LAID AND COMPACTED. DOWELS SHALL NOT BE DRIVEN DIRECTLY INTO ASPHALT AS A METHOD FOR SECURING HEADER CURB TO PAVEMENT.
9. BASE AND SUBGRADE THICKNESS UNDER CONCRETE CURBS TO BE AS SPECIFIED IN PROJECT SPECIFICATIONS, AS PER LOADING DESIGN CONDITIONS. MINIMUM THICKNESS FOR FLEXIBLE BASE UNDER CURB SHALL BE 4". MINIMUM THICKNESS FOR SUBGRADE UNDER CURB SHALL MATCH SUBGRADE PER PAVEMENT SECTION.
10. BASE AND SUBGRADE SHALL EXTEND A MINIMUM OF 12" BEYOND THE BACK OF CURB OR EDGE OF PAVEMENT.
11. AT LEAST 12" OF THE AREA BEHIND THE CURB SHALL BE BACKFILLED AND COMPACTED (MINIMUM 95% STANDARD PROCTOR DENSITY) IN ACCORDANCE WITH THE SPECIFICATIONS AS SOON AS POSSIBLE AND NO LATER THAN 48 HOURS OF REMOVAL OF FORMS (OR SOONER IN THE EVENT OF INCLEMENT WEATHER).
12. FOR EXPANSION JOINTS, TERMINATE STAKES BELOW THE TOP OF THE BOARD A DISTANCE EQUAL TO THE DEPTH OF THE CAP SEAL PROFILE PLUS 1/4". USE FACTORY FABRICATIONS FOR INTERSECTIONS AND CHANGES OF DIRECTION. INSURE ALL SECTIONS TO BE SPLICED ARE CUT SQUARE AND BOUND TOGETHER USING CAP SEAL ADHESIVE.
13. SECURE CAP SEAL TO THE EXPANSION BOARD WITH STAPLES, NAILS, SCREWS (APPROXIMATELY 18" ON CENTER) OR ADHESIVE TO PREVENT DISLOCATION DURING CONCRETE PLACEMENT.
14. PLACE CONCRETE USING NORMAL PLACEMENT TECHNIQUES, UTILIZING THE CAP SEAL AS SCREED RAIL. VIBRATE CONCRETE TO INSURE GOOD CONSOLIDATION AROUND CAP SEAL.
15. DO NOT TOOL CAP SEAL JOINT. INADEQUATE STAKING-EXPANSION BOARDS THAT BOW OR TWIST DURING CONCRETE PLACEMENT WILL RESULT IN IMPROPERLY ALIGNED SEALCAP.
16. INSUFFICIENT CONCRETE AT THE CAP SEAL PROFILE-CAP SEAL SHOULD BE FLUSH OR SLIGHTLY BELOW THE FINISHED CONCRETE SURFACE. CONCRETE WILL NOT ADHERE TO THE TOP OF CAP SEAL.
17. USE A DOWEL ALIGNING DEVISE AS NEEDED TO ELIMINATE CONCERN FOR CRACKING AND SPALLING



UNDER PAVEMENT

NOT UNDER PAVEMENT

SAND SPECIFICATIONS:

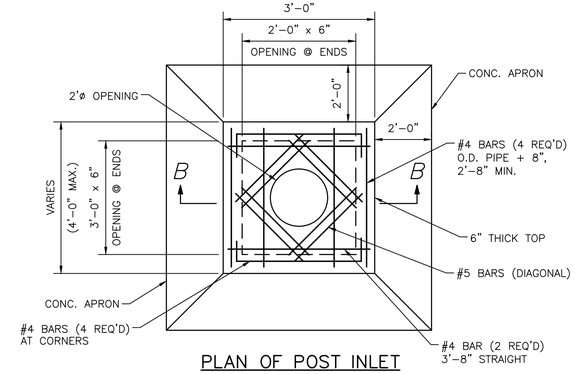
PASSING 7/8" SIEVE	100% BY WEIGHT
PASSING No. 4 SIEVE	80% BY WEIGHT
CLAY LUMPS NOT TO EXCEED	20% BY WEIGHT
PLASTICITY INDEX	NP-10 MAX

NOTES:

1. RCP SHALL HAVE JOINT FABRIC ON EXTERIOR TO PREVENT INFILTRATION OF SOIL.
2. FOR HDPE PIPE INCREASE DIMENSIONS AROUND PIPE O.D. FROM 6" TO 8".
3. ALL HDPE PIPE JOINT SYSTEM SHALL BE WATER TIGHT PIPE WITH JOINTS FACTORY TESTED TO 10 PSI OR GREATER.

STORM PIPE BACKFILL DETAILS

N.T.S.



PLAN OF POST INLET

N.T.S.

GENERAL NOTES FOR BACKFILL

TABLE 1
BEDDING AND INITIAL BACKFILL (BELOW PIPE TO 12" ABOVE PIPE)

ALL BEDDING AND INITIAL BACKFILL SHALL CONSIST OF THE FOLLOWING: GRANULAR BACKFILL CONSISTING OF EITHER NATURAL SAND OR SANDY GRAVEL, OR MATERIAL PRODUCED BY CRUSHING OF NATURAL STONE OR GRAVEL.

WATER LINES:

1. *EXCAVATIONS <2OFT. DEEP AND ABOVE WATER TABLE, USE MATERIAL MEETING THE FOLLOWING CRITERIA.*

   MEETING REQUIREMENTS OF ASTM D2487 FOR:

SP	GP
SW	GW
SP-SM	GP-GM
SW-SM	GW-GM

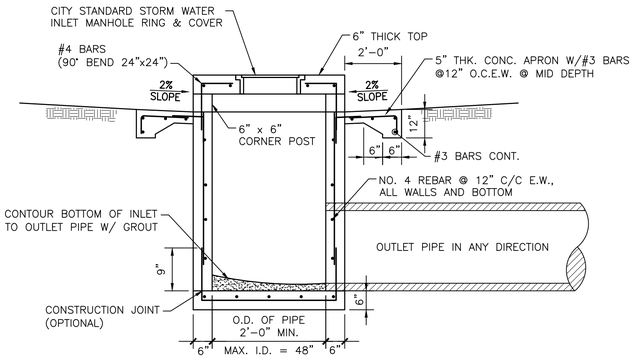
   AND IN ADDITION:
   PASSING 1/2" SIEVE - 100%
   PASSING #4 SIEVE - 30% MINIMUM
   PLASTICITY INDEX (PI) - NP TO 10 MAX.

2. *IN DEEP EXCAVATIONS (>20') OR BELOW WATER TABLE, USE CRUSHED STONE OR CRUSHED GRAVEL MEETING GRADATION OF:*

   A. CONCRETE COARSE AGGREGATE; TxDOT ITEM 421; GRADE 2, 3, OR 4.

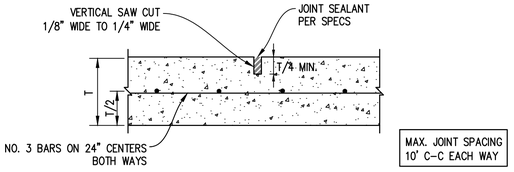
TABLE 2
FINAL BACKFILL (GREATER THAN 12" ABOVE PIPE)

	UNPAVED AREAS	PAVED AREAS
A.	*FOR 12" ABOVE PIPE TO BOTTOM OF TOPSOIL BACKFILL SHALL BE APPROVED SELECT MATERIAL FROM THE EXCAVATION; OR IMPORTED MATERIAL; ALL TO BE FREE OF ROCKS, DEBRIS, OR ANY CLUMPS GREATER THAN 2" IN DIAMETER; LOOSE LIFTS TO BE PLACED 10" MAX.* *COMPACT MATERIAL TO 95% STD. PROCTOR (D698).* *MOISTURE TO BE ADJUSTED TO ± 3% OF OPTIMUM.*	*A. FOR 12" ABOVE PIPE TO 3' BELOW BOTTOM OF ROAD BASE: BACKFILL SHALL BE SELECT MATERIAL FROM EXCAVATION OR TO BE IMPORTED MATERIAL IN EITHER CASE, ALL MATERIAL SHALL MEET THE FOLLOWING:* *LL<35* *PI 8-20* *NO CLUMPS > 2" DIA.* *MOISTURE 0 TO +3%* *COMPACT 95% D698 STD PROCTOR* *LOOSE LIFTS OF 10" MAX OR IF SELECT MATERIAL FROM EXCAVATION DOES NOT MEET REQUIREMENTS, THEN USE CEMENT STABILIZED SAND SEE TABLE 2-ITEM B BELOW*
B.	*TOPSOIL TO BE PROVIDED EQUAL OR BETTER THAN EXISTING; AND MATCH EXISTING TOPSOIL DEPTH. COMPACT TO FIX CONFLICT TO EXISTING ADJACENT TOPSOIL. (CONSTRUCTION TO BE PERFORMED BY "DOUBLE DITCH" METHOD TOP SOIL SALVAGED TO BE PLACED ON TOP)*	*B. FOR 3' BELOW BOTTOM OF ROAD BASE TO BOTTOM OF ROAD BASE:* *BACKFILL SHALL BE CEMENT STABILIZED SAND (2 SK/C.Y.) AND SHALL MEET THE FOLLOWING REQUIREMENTS:* *SAND GRADATION: % PASSING* *#4 55-100* *#10 40-100* *#40 25-100* *#200 10-20* *PI NP-10* *COMPACT TO 95% OF D698. MOISTURE TO BE ADJUSTED TO (+/-2%) OF OPTIMUM.*



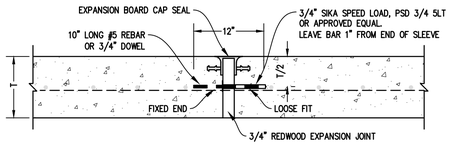
SECTION B-B

N.T.S.



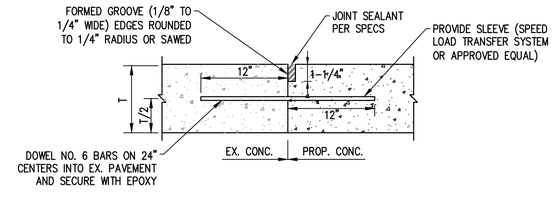
SAWED DUMMY JOINT DETAIL (CONTRACTION JOINT)

N.T.S.



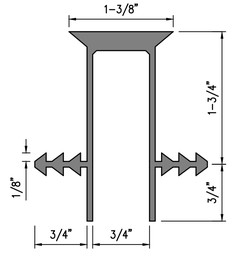
EXPANSION JOINT DETAIL

N.T.S.



NEW CONCRETE TO EXISTING CONCRETE TIE-IN DETAIL

N.T.S.



NOTES:

1. PAVING CAP SEAL SHALL BE GS 605 AS MANUFACTURED BY SIKA OR APPROVED EQUAL.
2. CAP SEAL SHALL BE SECURED TO ¾" REDWOOD EXPANSION BOARD BY STAPLING OR NAILING THROUGH BOTTOM FLANGE PRIOR TO CONCRETE PLACEMENT

PAVING CAP SEAL

N.T.S.

GENERAL NOTES FOR CONCRETE DRAINAGE STRUCTURES:

1. ALL CONCRETE SHALL BE CLASS "C" (3600 PSI) EXCEPT CONCRETE COLLARS MAY BE CLASS "A".
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (15'' MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.
5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. CHAMFER ALL EXPOSED EDGES 3/4''.
7. ALL CONCRETE COLLARS SHALL BE 1/4" BELOW THE FINISHED PAVEMENT ELEVATION UNLESS OTHERWISE NOTED ON THE PLANS.
8. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS AND MANHOLES, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION. PRECAST MANHOLE WITHIN THE ROADWAY SHALL BE DESIGNED TO SUPPORT HS-20 TRAFFIC LOADING AND SEALED BY A LICENSED ENGINEER.
9. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
10. INVERT OF INLET SHALL BE SLOPED 1:20 WITH GROUT.
11. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED EXCEPT WHERE OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.
12. IN DEEP EXCAVATIONS (> 20') OR BELOW WATER TABLE, USE CRUSHED STONE OR CRUSHED GRAVEL MEETING GRADATION OF CONCRETE COARSE AGGREGATE; TxDOT ITEM 421; GRADE 2, 3, OR 4.

NO.	REVISIONS	DATE

TEXAS BOARD OF PROFESSIONAL ENGINEERS — MICHAEL C. YORK — 124938 — LICENSED PROFESSIONAL ENGINEER

09 SEPTEMBER 2024

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING
9708 S PADRE ISLAND DR. SUITE A-200 | CORPUS CHRISTI | TEXAS | 78418
361-245-9400 | YORKENG.COM | TEXAS ENGINEERING FIRM F-22063

PAVING & STORM DETAILS

CALALLEN ISD WOOD RIVER WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO. 1099-24-03

SHEET: 4.1

GEOTECHNICAL ENGINEERING REPORT

MAGEE INTERMEDIATE WALKING TRACK
4201 Calallen Drive
Corpus Christi, Texas
UES Project No. G124173
June 28, 2024

Prepared for:

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Prepared by:

UES | 6817 Leopard St., Corpus Christi, TX 78409 | office: 361.883.4555 | fax: 361.883.4711

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

June 28, 2024

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Re: Geotechnical Engineering Report
MAGEE INTERMEDIATE WALKING TRACK
4201 Calallen Drive
Corpus Christi, Texas
UES Project No. G124173

Dear Mrs. Lorenz:

UES Professional Solutions 45, LLC., (hereinafter "UES") has performed a geotechnical exploration for the project referenced above. This study was authorized by the issuance of Calallen ISD Purchase Order Number 8882400369 dated April 23, 2024 and performed in accordance with UES Proposal No. CGP032524B (Revision 1) dated April 23, 2024.

The results of this exploration, together with our recommendations, are presented in the accompanying report, an electronic copy of which is being transmitted herewith.

UES appreciates the opportunity to be of service on this project. If we can be of further assistance, such as providing materials testing services during construction, please contact our office.

Sincerely,

UES Professional Solutions 45, LLC.
TEXAS PROFESSIONAL ENGINEERING FIRM NO. 2101

James Bauer, PE
Gulf Coast/South Texas Are

STATE OF TEXAS
JAMES P. BAUER
129201
LICENSED
PROFESSIONAL ENGINEER

Karl G. Crenwelge, P.E.
Senior Project Engineer

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of a subsurface exploration, laboratory testing program, and geotechnical analysis for the Magee Intermediate School Walking Track project to be located at 4201 Calallen Drive in Corpus Christi, Texas.

Purpose and Scope

The purpose of this exploration was to evaluate the soil and groundwater conditions at the site and to provide geotechnical recommendations suitable for the proposed project. The scope of the exploration and analysis included the subsurface exploration, field and laboratory testing, engineering analysis and evaluation of the subsurface conditions, provision of geotechnical recommendations, and preparation of this report.

The scope of services did not include an environmental assessment. Any statements in this report, or on the boring logs, regarding odors, colors, unusual or suspicious items or conditions are strictly for the information of the client.

General

The exploration and analysis of the subsurface conditions reported herein are considered sufficient in detail and scope to provide geotechnical recommendations for the proposed project. The recommendations submitted herein are based on project details provided by the client and the soil information obtained at the boring locations. If the designers require additional soil parameters to complete the design of the foundation or pavement systems, and this information can be obtained from the soil data and laboratory tests performed within the scope of work included in our proposal for this project, UES will provide the additional recommendations requested as a supplement to this report.

The Geotechnical Engineer states that the findings, recommendations, specifications or professional advice contained herein have been presented after being prepared in a manner consistent with that level of care and skill ordinarily exercised by reputable members of the Geotechnical Engineer's profession practicing contemporaneously under similar conditions in the locality of the project. UES operates in general accordance with *"Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction"* (ASTM D3740). No other representations are expressed or implied, and no warranty or guarantee is included or intended.

This study was conducted for Calallen ISD for the specific application of the proposed Magee Intermediate Walking Track project to be located on the campus of Magee Intermediate School at 4201 Calallen Drive in Corpus Christi, Texas.

SITE DESCRIPTION

The site of the planned improvements project is located on the campus of Magee Intermediate School located at 4201 Calallen Drive, in Corpus Christi, Texas. The campus consists of the main school buildings, a circular drive to the front, a rear parking area, and playground areas along the west side of the campus. An existing grass covered walking path area and crushed stone surfaced drive are within the playground area. The site is flat and level, and the existing ground surface provided adequate support for our drill rig and support vehicle to access the boring locations with no problems.

FIELD EXPLORATION

Scope

The field exploration, to evaluate the engineering characteristics of the subsurface materials, included reconnaissance of the project site, performing the boring operations and obtaining relatively undisturbed Shelby tube samples and a disturbed split-spoon sample. During the sample recovery operations the soils encountered were classified and recorded on the boring logs in accordance with the "*Standard Guide for Field Logging of Subsurface Exploration of Soil and Rock*" (ASTM D5434).

Four (4) borings were performed at the site for the purpose of providing geotechnical information. The table below provides the boring identification, boring depths, and approximate Global Positioning System (GPS) coordinates at the boring locations.

Summary of Boring Information		
Boring	**Depth (ft)**	**Approximate GPS Coordinates**
B-1	10	N 27.86254 ° W 97.63060 °
B-2	5	N 27.86171 ° W 97.63058 °
B-3	5	N 27.86165 ° W 97.63083 °
B-4	10	N 27.86110 ° W 97.63122 °

Approximate GPS coordinates were obtained at the boring locations using a recreational grade device and are provided in this report and on the boring logs. The client determined the number and depths of the borings and UES performed the drilling and logging operations.

Upon completion of the drilling operations and obtaining the groundwater observations, the boreholes were backfilled with excavated soil. A Boring Location Plan is provided in the Appendix.

The borings performed for this project were used to determine the classification and strengths of the subgrade soils. The information provided on the boring logs includes the boring location, depths, soil classifications, soil strengths, and laboratory test results. The boring logs are included in the Appendix.

Drilling and Sampling Procedures

The test borings were performed using a drilling rig equipped with a rotary head turning solid stem augers to advance the boreholes. Relatively undisturbed soil samples were obtained using thin-wall tube sampling procedures in general accordance with *"Thin-Walled Tube Sampling of Soils"*, (ASTM D1587). The samples obtained by this procedure were extruded by a hydraulic ram in the field. A disturbed soil sample was obtained using split-barrel sampling procedures in general accordance with the procedures for "Penetration Test and Split-Barrel Sampling of Soils", (ASTM D1586)

The samples were visual-manual classified with respect to (ASTM D2488), placed in plastic bags, marked according to boring number, depths and any other pertinent field data, stored in special containers and delivered to the laboratory for testing.

Field Observations

Standard Penetration Tests (SPTs) – During the sampling procedures, SPTs were performed to obtain the standard penetration values of the soil at selected intervals. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer, falling 30 inches, required to advance the split-barrel sampler 1 foot into the soil. The sampler is lowered to the bottom of the previously cleaned drill hole and advanced by blows from the hammer. The number of blows is recorded for each of three successive 6-inch penetrations. The "N" value is obtained by adding the second and third 6-inch increment number of blows. An automatic hammer was utilized when performing SPTs. An automatic hammer is usually taken as having an efficiency of close to one. The results of standard penetration tests indicate the relative density of cohesionless soils and comparative consistency of cohesive soils, thereby providing a basis for estimating the relative strength and compressibility of the soil profile components.

Water Level Observations – Water level observations were obtained during and after the test boring operations. Water level observations are noted on the boring logs provided in the Appendix. In relatively pervious soils, such as sandy soils, the indicated depths are usually reliable groundwater levels. In relatively impervious soils, such as clayey soils, a suitable estimate of the groundwater depth may not be possible, even after several days of observation. Seasonal variations, temperature, land-use, proximity to water bodies and recent rainfall conditions may influence the depth to the groundwater. The amount of water in open boreholes largely depends on the permeability of the soils encountered at the boring locations.

Ground Surface Elevations – The ground surface elevations at the boring locations were not provided. Therefore, depths referred to in this report are from the ground surface at the boring locations during the time of our field investigation.

LABORATORY TESTING PROGRAM

In addition to the field investigation, a laboratory testing program was conducted to determine additional pertinent engineering characteristics of the subsurface materials necessary in analyzing the behavior of the subgrade soils for the proposed project.

The laboratory testing program included supplementary visual-manual classification (ASTM D2488) and water content tests (ASTM D2216) on the samples. In addition, selected samples were subjected to Atterberg limits tests (ASTM D4318) and percent material finer than the #200 sieve tests (ASTM D1140) and then classified with respect to the Unified Soil Classification System (ASTM D2487). The shear strengths of all the cohesive soil samples obtained by Shelby tube sampling were estimated using a hand penetrometer.

The laboratory testing program was conducted in general accordance with applicable ASTM Specifications. The results of these tests are to be found on the accompanying boring logs provided in the Appendix.

SUBSURFACE CONDITIONS

General

The types of bearing materials encountered in the test borings have been visually classified and are described in detail on the boring logs. The results of water level observations and laboratory tests are also presented on the boring logs. Representative samples of the soils were placed in sealed polyethylene bags and are now stored in the laboratory for further analysis, if desired. Unless notified to the contrary, the samples will be disposed of three months after issuance of this report.

The stratification of the soil, as shown on the boring logs, represents the soil conditions at the actual boring locations. Variations may occur and should be expected between and beyond the boring locations. Lines of demarcation represent the approximate boundary between different soil types, but the transition may be gradual, or not clearly defined. It should be noted that, whereas the test borings were drilled and sampled by experienced drillers, it is sometimes difficult to record changes in stratification within narrow limits. In the absence of foreign substances, it is also difficult to distinguish between discolored soils and clean soil fill.

Soil Conditions

The generalized soil conditions encountered in the area of the planned new construction at the project site have been summarized and soil properties including soil classification, strength and plasticity are provided in the following tables.

Soil Profile Table 1 (Borings B-1 and B-2)								
D	Description	LL	PI	-#200	ϕ	γ_e	C	P
0-0.5	Crushed Limestone w/Geogrid	--	--	--	--	--	--	--
0.5-5.5	Lean **CLAY** with Sand and Sandy Lean **CLAY**	46-48	30	68-71	0	120	1,200	1.5-2.5
5.5-10	Fat **CLAY** with Sand	53	36	--	0	120	1,500	2.0-2.5

Note: Boring B-2 terminated at a depth of 5 feet.

Soil Profile Table 2 (Borings B-3 and B-4									
D	Description	LL	PI	-#200	ϕ	γ_e	C	P	N
0-8	Fat **CLAY** w/ Sand	50-55	34-38	70-76	0	120	3,000	4.5+	--
8-10	Fat **CLAY** w/ Sand	--	--	--	0	120	2,300	--	19

Note: Boring B-3 terminated at a depth of 5 feet.

Where:

D = Depth in feet below existing grade
PI = Plasticity index
ϕ = Angle of Internal Friction, deg. (undrained)
-#200 = Material passing #200 sieve, %
N = SPT N-value, bpf
LL = Liquid limit, %
C = Soil Cohesion, psf (undrained)
γ_e = Effective soil unit weight, pcf
P = Hand penetrometer value range, tsf

Detailed descriptions of the soils encountered at the boring locations are provided on the boring logs included in the Appendix.

Groundwater Observations

Groundwater was not encountered during our drilling and sampling operations. It is important to note that water levels in open boreholes may require several hours to several days to stabilize depending on the permeability of the soils and groundwater levels at this site may be subject to seasonal conditions, recent rainfall, drought or temperature effects.

GEOTECHNICAL DISCUSSION

Project Description

Based on information provided to Rock Engineering, the project will consist of constructing a concrete walking track. Existing topographic information, loading conditions, or grading plans have not been provided. However, we anticipate that the finish floor elevation (FFE) of the proposed new concrete pavement to be 6 inches to 1 foot above the existing site grades. If additional information becomes available it should be forwarded to UES, so we can adjust our recommendations, if needed.

Potential Vertical Rise (PVR) Discussion

The laboratory test results indicate that the subsoils in the active zone at this site are high in plasticity. **The calculated total potential vertical rise (PVR) for slab-on-grade construction at this site is estimated to be on the order of 3 to 3 ½ inches.** It should be noted that this estimated value is based on the assumption that the plasticity indices of the soils present in the upper 10 fete of the subsurface profile remain consistent through the remainder of the active zone which is estimated to extend to a depth of 15 feet. This PVR value was calculated using the Texas Department of Transportation Method TEX-124E and took into account the average depth of active zone and the Atterberg limits test result of the soils encountered within the active zone.

It is important to note that the PVR value provided herein was calculated using the Texas Department of Transportation Method TEX-124E and represents the vertical rise that can be experienced by subsoils subjected to increases in soil moisture content resulting from capillary or surface water.

Conditions that allow the soils to become saturated or significantly exceed typical moisture variations resulting from environmental conditions or exceed the dry and wet boundary conditions established by the TEX-124E method, such as poor drainage and/or broken utilities may result in 2 to 3 times or more the magnitude of moisture related soil movements than estimated by the PVR provided herein. Differential vertical movements may occur over a distance equal to the depth of the active zone and can potentially be equal to the expected total movements.

Typically undercutting and replacing the expansive soils is performed to reduce the PVR to an acceptable value for grade supported structures, whereas, stabilization of expansive subgrade soils is performed below pavements and non-movement sensitive flatwork.

PAVEMENT CONSIDERATIONS

In designing the proposed walking track, the existing subgrade conditions must be considered together with the expected use and loading conditions. The conditions that influence pavement design can be summarized as follows:

- Bearing values of the subgrade. These can be represented by a CBR and a Modulus of Subgrade Reaction (K), for flexible and rigid pavements, respectively.
- Expected traffic use, in terms of the number and frequency of vehicles and their range of axle loads.
- Probable increase in vehicular use over the life of the pavement.
- The availability of suitable materials to be used in the construction of the pavement and their relative costs.

Specific laboratory testing to define the subgrade strength (i.e. CBR and K value) has not been performed for this analysis. Based upon local experience, the estimated CBR and K values for the controlling clay soils encountered at the planned parking lot area are 3 and 100 pci, respectively.

Since anticipated usage conditions have not been provided, it is only possible to provide non-engineered pavement sections suitable for light-duty service based on pavement sections that have provided adequate serviceability for similar type facilities and on similar soils.

Allowances for proper drainage is most important for performance of pavements. Ruts, birdbaths, and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying subgrade soils.

Rigid Pavement Recommendations

The use of concrete for paving of walking trails has become more prevalent in recent years due to the long-term maintenance cost benefits of concrete pavement compared to asphaltic pavements. The recommended light-duty pavement section is provided in the following table. Light-duty rigid concrete pavements are recommended for pedestrian trails that will be exposed to occasional maintenance vehicles. If a heavier duty pavement is required, our office should be contacted to reevaluate our recommendations.

Rigid Pavement	Light-Duty
Reinforced Concrete	5 inches
Lime Stabilized Subgrade (5%)	8 inches

Concrete pavement should be properly reinforced and jointed, as per ACI, and should have a minimum 28 day compressive strength of 4,000 psi. Expansion joints should be sealed with an appropriate sealant so that moisture infiltration into the subgrade soils and resultant concrete deterioration at the joints is minimized. The joints should be thoroughly cleaned, and sealant should be installed without overfilling before pavement is opened to traffic.

Allowances for proper drainage and proper material selection of base materials are most important for performance of pavements. Ruts, birdbaths and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying base materials and subgrade soils.

Pavement Subgrade Preparation

In areas where the pavements will be constructed, after all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade.

For Lime Treatment operations, upon completion of proof rolling, the lime stabilization operations shall be performed in accordance with TxDOT Item 260, "Lime Treatment for Materials Used As Subgrade (Road Mixed)". Based on the results of the Atterberg limits testing for the subgrade soils and associated curves provided in TxDOT Test Method 121-E, UES recommends that the lime be mixed at the rate of **5 percent**, based on the maximum dry unit weight of the raw subgrade soils as determined by the standard Proctor test (ASTM D698). The lime stabilized soils should be compacted to a minimum density of 98 percent of the maximum dry density, as determined by a standard Proctor test (ASTM D698), and at or above the optimum moisture content.

Routine Maintenance of Rigid Pavement Systems

The pavement section provided in this report is based on pavement sections constructed on similar subgrade soils and for facilities similar to those planned for construction at this site. The pavement will require routine maintenance such as crack sealing and seal coats for flexible pavements and joint maintenance for rigid pavement sections to achieve a desirable life of pavement.

Without proper maintenance, moisture infiltration into the base materials and/or subgrade will result in rapid deterioration of the pavement system. UES recommends that the owner protect their investment by incorporating an aggressive maintenance program.

SITE IMPROVEMENT METHODS

Concrete Flatwork Construction Considerations

Provisions in the site development should be made in order to maintain relatively uniform moisture contents of the supporting soils. A number of measures may be used to attain a reduction in subsoil moisture content variations. Some of these measures are outlined below:

- During construction, positive drainage schemes should be implemented to prevent ponding of water on the subgrade.

- Positive drainage should be maintained around the paved surfaces, transmitting water away from the perimeter and site flatwork. In addition, positive grades sloping away from the site flatwork should be designed and implemented.

- We recommend that an effective site drainage plan be devised by others prior to commencement of construction to provide positive drainage away from the site improvements and off the site, both during and after construction.

- Vegetation placed in landscape beds that are adjacent to the site flatwork should be limited to plants and shrubs that will not exceed a mature height of 3 feet. Large bushes and trees should be planted away from the foundation and flatwork at a distance that will exceed their full mature height and canopy width.

- Individual concrete panels of site flatwork should be dowelled together to minimize trip hazards as a result of differential movements within the flatwork.

- Site flatwork should be designed to drain quickly with a minimum positive slope of 1 percent.

All project features beyond the scope of those discussed above should be planned and designed similarly to attain a region of relatively uniform moisture content within the pavement and flatwork areas. Poor drainage schemes are generally the primary cause of pavement and flatwork problems in South Texas.

CONSTRUCTION CONSIDERATIONS

Site Preparation

Site clearing and grubbing operations should be performed at the site to remove organics, roots, rubble, deleterious matter or otherwise unsuitable soil or materials to a minimum depth of 6 inches, or deeper if needed for their complete removal. Deeper excavations may be needed to completely remove tree roots. This excavation should extend laterally outside the footprint of the pavement and systems of the project, for a minimum distance of 2 feet. After all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade.

Earthwork and Foundation Acceptance

Exposure to the environment may weaken the soils at the pavement bearing level if excavations remain open for long periods of time. Therefore, it is recommended that the pavement excavations be extended to final subgrade elevations and that the pavements be constructed as soon as possible to minimize potential damage to the bearing soils.

The pavement excavations should be free of loose soil, ponded water or debris, and should be observed prior to concreting by the Geotechnical Engineer, or his designated representative.

Concrete and flatwork constituents should not be placed on soils that have been disturbed by rainfall or seepage. If the subgrade soils are softened by surface water intrusion, or by desiccation, the unsuitable soils must be removed and be replaced with properly compacted soils or base material as directed by the Geotechnical Engineer.

The Geotechnical Engineer or his designated representative should monitor subgrade preparation. As a guideline, density tests should be performed on the exposed subgrade soils and each subsequent lift of compacted select fill soils at a rate of one test per 2,000 square feet or a minimum of three in-place nuclear tests per testing interval, whichever is greater. Any areas not meeting the required compaction should be recompacted and retested until compliance is met.

Select Fill

Imported select fill material used at this site should be homogenous, free from organics and other deleterious materials and should have a maximum liquid limit of 40 percent and a plasticity index (PI) between 7 and 18. The select fill soils shall have a minimum of 35 percent passing the #200 sieve and no soil particles exceeding 1½ inches will be permitted. The select fill should be placed in no greater than 8 inch thick loose lifts and then compacted to a minimum density of 98 percent of the maximum dry density, as determined by the standard Proctor test (ASTM D698), and at, or above, the optimum moisture content.

OSHA Soil Type Classification

The table below provides a summary of the OSHA Soil Type Classification based on the soils encountered at boring locations.

Soil Type Classification Table		
Depth (feet)	**Description**	**OSHA Soil Type Classification**
0-10	Cohesive Soil Above Water Table (average undrained shear strength greater than 500 psf)	Type B

It should be noted that the contractor's "competent person" shall make the final determination of the OSHA Soil Type during excavation of the soils at the jobsite. If OSHA Soil Type Classification is required greater than 10 feet below the existing grade, Please contact UES for additional information.

If groundwater is encountered during construction, all soils below the groundwater elevation or from which water freely seeps should be downgraded to Type C soils. Slope protection or slope benching is required for excavations greater than 5 feet for worker protection and trenching greater than 20 feet needs to be designed and sealed by a professional engineer registered in the State of Texas. The maximum allowable slopes during construction for soil OSHA soil types are provided below.

Guidelines for Maximum Allowable Slopes	
Soil or Rock Type	**Max. Allow. Slopes for Excavations < Than 20' Deep**
Type B	1 Horizontal : 1 Vertical
Type C	1½ Horizontal : 1 Vertical

Guidelines for maximum allowable slopes were obtained from OSHA documents, but do not take into account any recent revisions or the stability of long-term unprotected slopes. Long term unprotected slopes will likely require much flatter slopes. The guidelines presented herein for slopes do not imply UES is taking responsibility for construction site safety; this responsibility falls entirely upon the contractor and his responsible person. The contractor shall comply with all rules, ordinances and other requirements to comply with safe construction practices.

GENERAL COMMENTS

If significant changes are made in the character or location of the Magee Intermediate Walking Track project, a consultation should be arranged to review any changes with respect to the prevailing soil conditions. At that time, it may be necessary to submit supplementary recommendations.

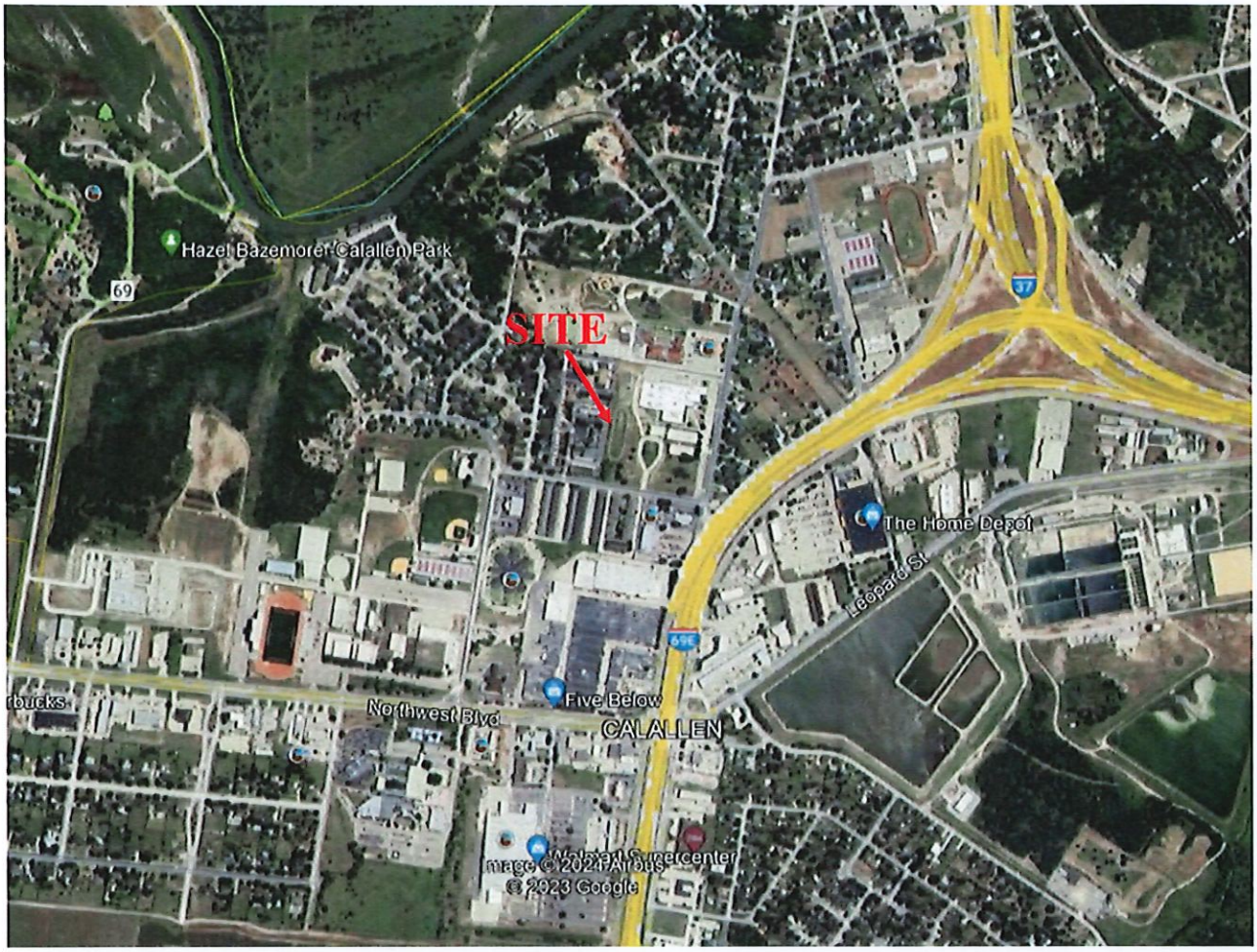
It is recommended that the services of UES be engaged to test and evaluate the soils in the excavations prior to concreting in order to verify that the bearing soils are consistent with those encountered in the boring. UES cannot accept any responsibility for any conditions that deviate from those described in this report, nor for the performance of the site improvements if not engaged to also provide construction observation and testing for this project. If it is required for UES to accept any liability, then UES must review and agree with the plans and perform such observation during construction as we recommend.

All dewatering, sheeting, shoring, and bracing of trenches, pits and excavations should be made the responsibility of the contractor and should comply with all current and applicable local, state and federal safety codes, regulations and practices, including the Occupational Safety and Health Administration.

APPENDIX

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

SITE VICINITY MAP



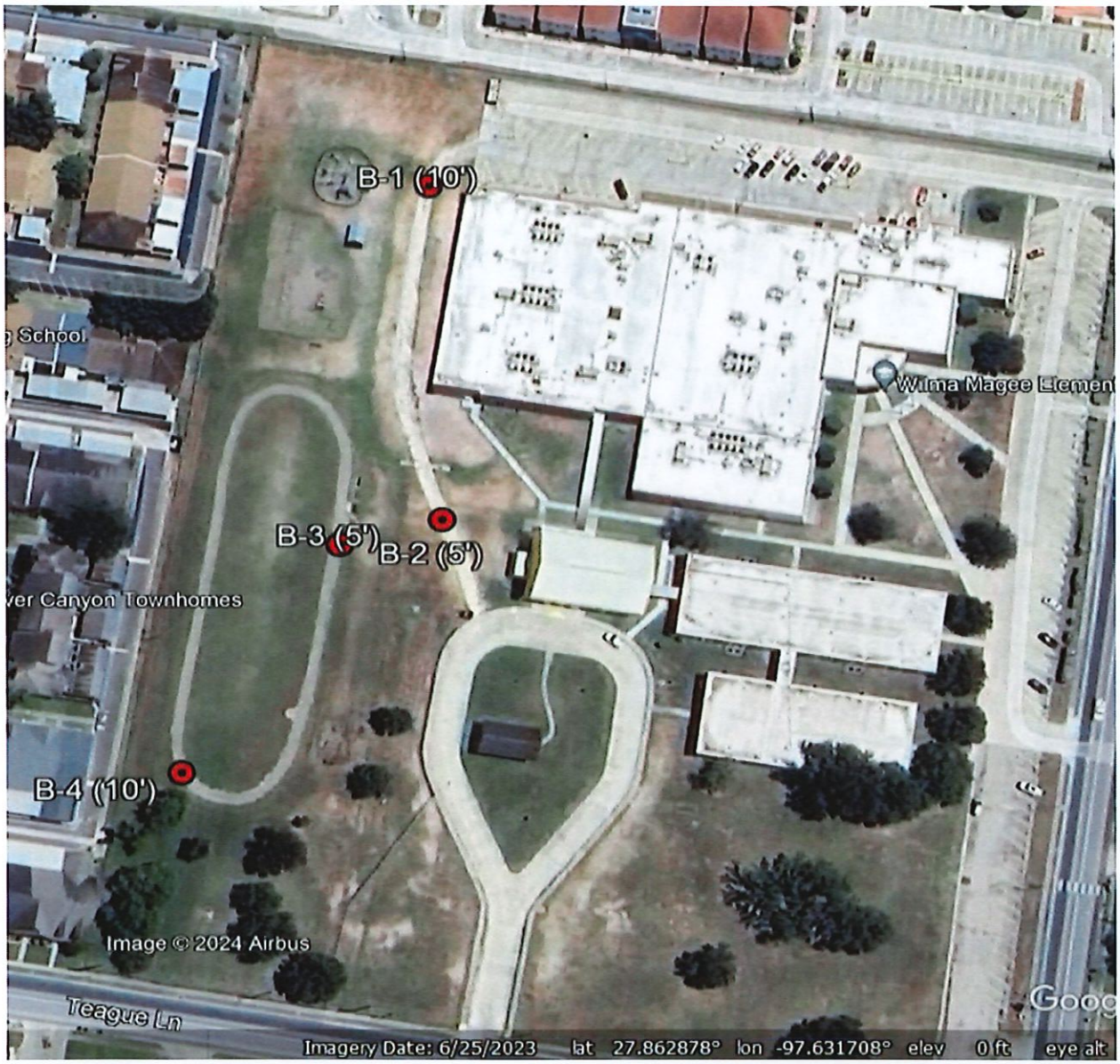
June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124173

MAGEE INTERMDIATE WALKING TRACK
4201 Calallen Drive
Corpus Christi, Texas

UES

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

BORING LOCATION PLAN



June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124173

MAGEE INTERMDIATE WALKING TRACK
4201 Calallen Drive
Corpus Christi, Texas

LOG OF BORING B-1

UES Professional Solution 45, LLC
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Magee Intermediate Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124173
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling.
Dry and open upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
												FILL: CRUSHED LIMESTONE, with geogrid, light brown. (appoximately 5 inches)
	1											
	2	SH S-1		P= 2.5	24	46	16	30			71	**LEAN CLAY WITH SAND** (CL), dark gray, moist, very stiff.
	3											
	4	SH S-2		P= 1.5	23							Same as above, stiff.
	5											
	6											
	7	SH S-3		P= 2.0	25	53	17	36				**FAT CLAY WITH SAND,** brown, moist, stiff.
	8											
	9	SH S-4		P= 2.5	25							Same as above, very stiff.
	10											Boring terminated at 10 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilliing operations performed by Rock Engingeering at GPS coordinates N 27.86254 W 97.63060

LOG_OF_BORING G124173 MAGEE.GPJ ROCK_ETL.GDT 6/28/24

LOG OF BORING B-2

UES Professional Solution 45, LLC
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Magee Intermediate Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124173
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling.
Dry and open upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
												FILL:CRUSHED LIMESTONE, with geogrid, light brown. (appoximately 9.5 inches)
	1											
	2	SH S-1		P= 1.5	25	48	18	30			68	**SANDY LEAN CLAY** (CL), dark gray, moist, stiff.
	3											
	4	SH S-2		P= 2.0	24							Same as above, gray and brown.
	5											Boring terminated at 5 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drillilng operations performed by Rock Engingeering at GPS coordinates N 27.86171 W 97.63058

LOG_OF_BORING G124173 MAGEE.GPJ ROCK_ETL.GDT 6/28/24

LOG OF BORING B-3

UES Professional Solution 45, LLC
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Magee Intermediate Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124173
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling.
Dry and open upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	FIELD DATA: N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	LABORATORY DATA: MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT (LL)	ATTERBERG LIMITS: PLASTIC LIMIT (PL)	ATTERBERG LIMITS: PLASTICITY INDEX (PI)	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	SH S-1		P= 4.5+	17	54	18	36			73	**FAT CLAY WITH SAND** (CH), dark gray, moist, hard.
	2											
	3											
	4	SH S-2		P= 4.5+	19							Same as above, gray and brown.
	5											Boring terminated at 5 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drillilng operations performed by Rock Engingeering at GPS coordinates N 27.86165 W 97.63083

LOG_OF_BORING G124173 MAGEE.GPJ ROCK_ETL.GDT 6/28/24

LOG OF BORING B-4

UES Professional Solution 45, LLC
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Magee Intermediate Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124173
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling.
Dry and open upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	SH S-1		P= 4.5+	16	50	16	34			70	**FAT CLAY WITH SAND** (CH), gray, moist, hard.
	2											
	3											
	4	SH S-2		P= 4.5+	18							Same as above, gray and brown.
	5											
	6											
	7	SH S-3		P= 4.5+	18	55	17	38			76	Same as above, brown. (CH)
	8											
	9	SS S-4		N= 19	19							Same as above, very stiff.
	10											Boring terminated at 10 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilliing operations performed by Rock Engingeering at GPS coordinates N 27.86110 W 97.63122

LOG_OF_BORING G124173 MAGEE.GPJ ROCK_ETL.GDT 6/28/24

UES
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

KEY TO SOIL CLASSIFICATION AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well Graded Gravels or Gravel-Sand mixtures, little or no fines
		GP	Poorly Graded Gravels or Gravel-Sand mixtures, little or no fines
		GM	Silty Gravels, Gravel-Sand-Silt mixtures
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SAND AND SANDY SOILS	SW	Well Graded Sands or Gravelly Sands, little or no fines
		SP	Poorly Graded Sands or Gravelly Sands, little or no fines
		SM	Silty Sands, Sand-Silt Mixtures
		SC	Clayey Sands, Sand-Clay mixtures
	SILTS AND CLAYS LL < 50	ML	Inorganic Silts and very fine Sands, Rock Flour, Silty or Clayey fine Sands or Clayey Silts
		CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		OL	Organic Silts and Organic Silt-Clays of low plasticity
	SILTS AND CLAYS LL > 50	MH	Inorganic Silts, Micaceous or Diatomaceous fine Sandy or Silty soils, Elastic Silts
		CH	Inorganic Clays of high plasticity, Fat Clays
		OH	Organic Clays of medium to high plasticity, Organic Silts
NON USCS MATERIALS			Limestone
			Marl/Claystone
			Sandstone

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical

LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top

CRUMBLY - cohesive soils which break into small blocks or crumbs on drying

CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular

WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes

POORLY GRADED - predominantly of one grain size uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded)

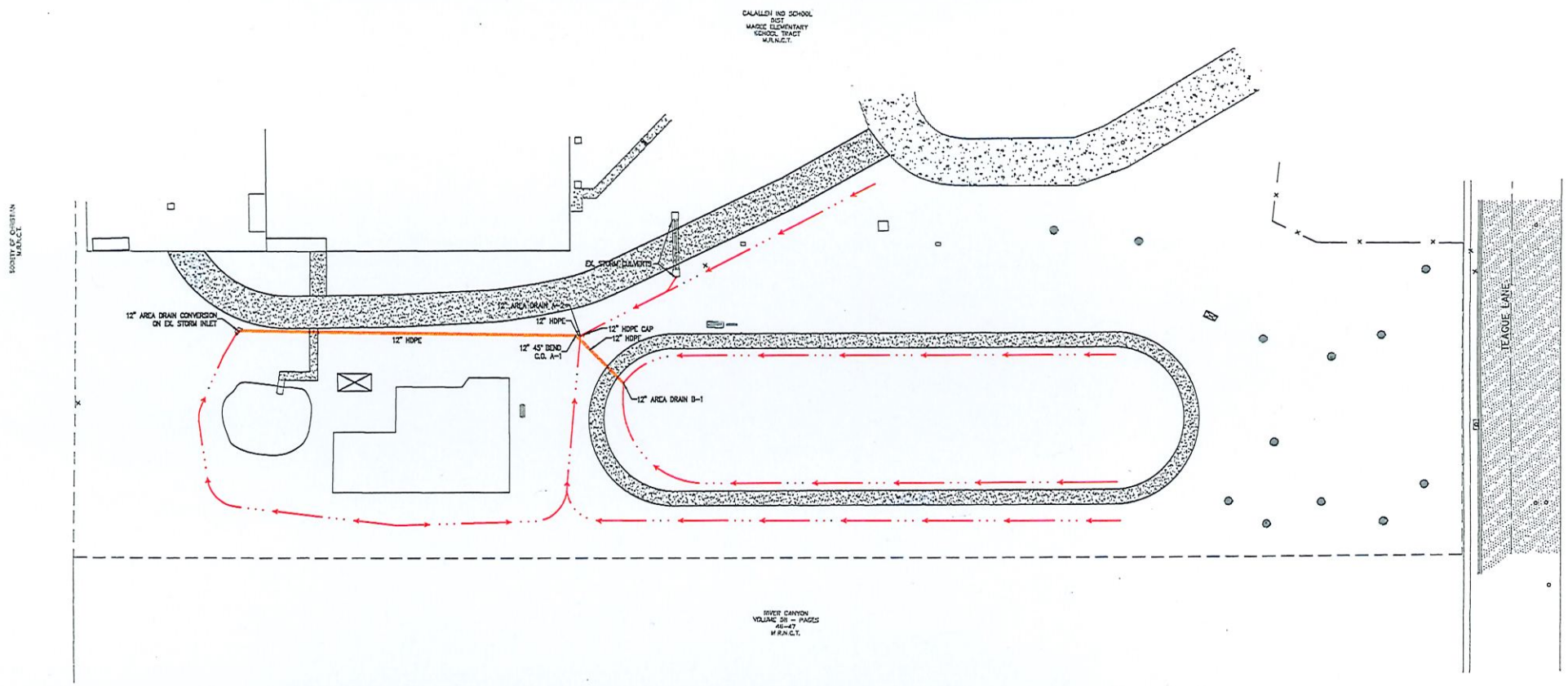
SYMBOLS FOR TEST DATA

- Groundwater Level (Initial Reading)
- Groundwater Level (Final Reading)
- Shelby Tube Sample
- SPT Samples
- Auger Sample
- Rock Core
- Texas Cone Penetrometer
- Grab Sample

TERMS DESCRIBING CONSISTENCY OF SOIL

COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	< 2	< 0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Medium	10 - 30	Firm	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

Field Classification for "Consistency" of Fine Grained Soils is determined with a 0.25" diameter penetrometer



PRELIMINARY FOR REVIEW ONLY

NO.	REVISIONS	DATE

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING

Exhibit - Schematic Site Plan

CISD MAGEE ELEMENTARY WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO. 1899-24-02

SHEET: 2.1

GEOTECHNICAL ENGINEERING REPORT

WOOD RIVER ELEMENTARY WALKING TRACK

15118 Dry Creek Drive
Corpus Christi, Texas
UES Project No. G124174
June 28, 2024

Prepared for:

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Prepared by:

UES | 6817 Leopard St., Corpus Christi, TX 78409 | office: 361.883.4555 | fax: 361.883.4711

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

June 28, 2024

Calallen ISD
4205 Wildcat Drive
Corpus Christi, Texas 78410
Attention: Mrs. Emily Lorenz

Re: Geotechnical Engineering Report
WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas
UES Project No. G124174

Dear Mrs. Lorenz:

UES Professional Solutions 45, LLC., (hereinafter "UES") has performed a geotechnical exploration for the project referenced above. This study was authorized by the issuance of Calallen ISD Purchase Order Number 8882400370 dated April 23, 2024 and performed in accordance with UES Proposal No. CGP032524C (Revision 1) dated April 23, 2024.

The results of this exploration, together with our recommendations, are presented in the accompanying report, an electronic copy of which is being transmitted herewith.

UES appreciates the opportunity to be of service on this project. If we can be of further assistance, such as providing materials testing services during construction, please contact our office.

Sincerely,

UES Professional Solutions 45, LLC.
TEXAS PROFESSIONAL ENGINEERING FIRM NO. 2101

James Bauer, PE
Gulf Coast/South Texas Are

STATE OF TEXAS
JAMES P. BAUER
129201
LICENSED
PROFESSIONAL ENGINEER

Karl G. Crenwelge, P.E.
Senior Project Engineer

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of a subsurface exploration, laboratory testing program, and geotechnical analysis for the Wood River Elementary Walking Track project to be located at 15118 Dry Creek Drive in Corpus Christi, Texas.

Purpose and Scope

The purpose of this exploration was to evaluate the soil and groundwater conditions at the site and to provide geotechnical recommendations suitable for the proposed project. The scope of the exploration and analysis included the subsurface exploration, field and laboratory testing, engineering analysis and evaluation of the subsurface conditions, provision of geotechnical recommendations, and preparation of this report.

The scope of services did not include an environmental assessment. Any statements in this report, or on the boring logs, regarding odors, colors, unusual or suspicious items or conditions are strictly for the information of the client.

General

The exploration and analysis of the subsurface conditions reported herein are considered sufficient in detail and scope to provide geotechnical recommendations for the proposed project. The recommendations submitted herein are based on project details provided by the client and the soil information obtained at the boring locations. If the designers require additional soil parameters to complete the design of the foundation or pavement systems, and this information can be obtained from the soil data and laboratory tests performed within the scope of work included in our proposal for this project, UES will provide the additional recommendations requested as a supplement to this report.

The Geotechnical Engineer states that the findings, recommendations, specifications or professional advice contained herein have been presented after being prepared in a manner consistent with that level of care and skill ordinarily exercised by reputable members of the Geotechnical Engineer's profession practicing contemporaneously under similar conditions in the locality of the project. UES operates in general accordance with *"Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction"* (ASTM D3740). No other representations are expressed or implied, and no warranty or guarantee is included or intended.

This study was conducted for Calallen ISD for the specific application of the proposed Wood River Elementary Walking Track project to be located on the campus of Wood River Elementary School at 15118 Dry Creek Drive in Corpus Christi, Texas.

SITE DESCRIPTION

The site of the planned improvements project is located on the campus of Wood River Elementary School located at 15118 Dry Creek Drive, in Corpus Christi, Texas. The campus consists of the main school buildings at the north end of the campus and an open ground area at the south end, the two which are divided by a roadway. The open ground area is mostly grass covered and has an existing asphaltic walking path. The site is flat and level, and the existing ground surface provided adequate support for our drill rig and support vehicle to access the boring locations with no problems.

FIELD EXPLORATION

Scope

The field exploration, to evaluate the engineering characteristics of the subsurface materials, included reconnaissance of the project site, performing the boring operations and obtaining relatively undisturbed Shelby tube samples. During the sample recovery operations the soils encountered were classified and recorded on the boring logs in accordance with the *"Standard Guide for Field Logging of Subsurface Exploration of Soil and Rock"* (ASTM D5434).

Two (2) borings were performed at the site for the purpose of providing geotechnical information. The table below provides the boring identification, boring depths, and approximate Global Positioning System (GPS) coordinates at the boring locations.

Summary of Boring Information		
Boring	**Depth (ft)**	**Approximate GPS Coordinates**
B-1	5	N 27.86101 ° W 97.66116 °
B-2	10	N 27.86073 ° W 97.66037 °

Approximate GPS coordinates were obtained at the boring locations using a recreational grade device and are provided in this report and on the boring logs. The client determined the number and depths of the borings and UES performed the drilling and logging operations.

Upon completion of the drilling operations and obtaining the groundwater observations, the boreholes were backfilled with excavated soil. A Boring Location Plan is provided in the Appendix.

The borings performed for this project were used to determine the classification and strengths of the subgrade soils. The information provided on the boring logs includes the boring location, depths, soil classifications, soil strengths, and laboratory test results. The boring logs are included in the Appendix.

Drilling and Sampling Procedures

The test borings were performed using a drilling rig equipped with a rotary head turning solid stem augers to advance the boreholes. Relatively undisturbed soil samples were obtained using thin-wall tube sampling procedures in general accordance with *"Thin-Walled Tube Sampling of Soils"*, (ASTM D1587). The samples obtained by this procedure were extruded by a hydraulic ram in the field.

The samples were visual-manual classified with respect to (ASTM D2488), placed in plastic bags, marked according to boring number, depths and any other pertinent field data, stored in special containers and delivered to the laboratory for testing.

Field Observations

Water Level Observations – Water level observations were obtained during and after the test boring operations. Water level observations are noted on the boring logs provided in the Appendix. In relatively pervious soils, such as sandy soils, the indicated depths are usually reliable groundwater levels. In relatively impervious soils, such as clayey soils, a suitable estimate of the groundwater depth may not be possible, even after several days of observation. Seasonal variations, temperature, land-use, proximity to water bodies and recent rainfall conditions may influence the depth to the groundwater. The amount of water in open boreholes largely depends on the permeability of the soils encountered at the boring locations.

Ground Surface Elevations – The ground surface elevations at the boring locations were not provided. Therefore, depths referred to in this report are from the ground surface at the boring locations during the time of our field investigation.

LABORATORY TESTING PROGRAM

In addition to the field investigation, a laboratory testing program was conducted to determine additional pertinent engineering characteristics of the subsurface materials necessary in analyzing the behavior of the subgrade soils for the proposed project.

The laboratory testing program included supplementary visual-manual classification (ASTM D2488) and water content tests (ASTM D2216) on the samples. In addition, selected samples were subjected to Atterberg limits tests (ASTM D4318) and percent material finer than the #200 sieve tests (ASTM D1140) and then classified with respect to the Unified Soil Classification System (ASTM D2487). The shear strengths of all the cohesive soil samples obtained by Shelby tube sampling were estimated using a hand penetrometer.

The laboratory testing program was conducted in general accordance with applicable ASTM Specifications. The results of these tests are to be found on the accompanying boring logs provided in the Appendix.

SUBSURFACE CONDITIONS

General

The types of bearing materials encountered in the test borings have been visually classified and are described in detail on the boring logs. The results of water level observations and laboratory tests are also presented on the boring logs. Representative samples of the soils were placed in sealed polyethylene bags and are now stored in the laboratory for further analysis, if desired. Unless notified to the contrary, the samples will be disposed of three months after issuance of this report.

The stratification of the soil, as shown on the boring logs, represents the soil conditions at the actual boring locations. Variations may occur and should be expected between and beyond the boring locations. Lines of demarcation represent the approximate boundary between different soil types, but the transition may be gradual, or not clearly defined. It should be noted that, whereas the test borings were drilled and sampled by experienced drillers, it is sometimes difficult to record changes in stratification within narrow limits. In the absence of foreign substances, it is also difficult to distinguish between discolored soils and clean soil fill.

Soil Conditions

The generalized soil conditions encountered in the area of the planned new construction at the project site have been summarized and soil properties including soil classification, strength and plasticity are provided in the following tables.

Soil Profile Table 1 (Borings B-1 and B-2)								
D	Description	LL	PI	-#200	ϕ	γ_e	C	P
0-5.5	Sandy Lean **CLAY**	36-43	21-30	51-56	0	120	2,800	4.5+
5.5-10	**CLAYEY** Sand	24	10	40	0	120	2,200	3.0-4.0

Note: Boring B-1 terminated at a depth of 5 feet.

Where:

D = Depth in feet below existing grade
PI = Plasticity index
ϕ = Angle of Internal Friction, deg. (undrained)
-#200 = Material passing #200 sieve, %
LL = Liquid limit, %
C = Soil Cohesion, psf (undrained)
γ_e = Effective soil unit weight, pcf
P = Hand penetrometer value range, tsf

Detailed descriptions of the soils encountered at the boring locations are provided on the boring logs included in the Appendix.

Groundwater Observations

Groundwater was not encountered during our drilling and sampling operations. It is important to note that water levels in open boreholes may require several hours to several days to stabilize depending on the permeability of the soils and groundwater levels at this site may be subject to seasonal conditions, recent rainfall, drought or temperature effects.

GEOTECHNICAL DISCUSSION

Project Description

Based on information provided to Rock Engineering, the project will consist of constructing a concrete walking track. Existing topographic information, loading conditions, or grading plans have not been provided. However, we anticipate that the finish floor elevation (FFE) of the proposed new concrete pavement to be 6 inches to 1 foot above the existing site grades. If additional information becomes available it should be forwarded to UES, so we can adjust our recommendations, if needed.

Potential Vertical Rise (PVR) Discussion

The laboratory test results indicate that the subsoils in the active zone at this site are high in plasticity. **The calculated total potential vertical rise (PVR) for slab-on-grade construction at this site is estimated to be on the order of 1½ to 2 inches.** It should be noted that this estimated value is based on the assumption that the plasticity indices of the soils present in the upper 10 fete of the subsurface profile remain consistent through the remainder of the active zone which is estimated to extend to a depth of 15 feet. This PVR value was calculated using the Texas Department of Transportation Method TEX-124E and took into account the average depth of active zone and the Atterberg limits test result of the soils encountered within the active zone.

It is important to note that the PVR value provided herein was calculated using the Texas Department of Transportation Method TEX-124E and represents the vertical rise that can be experienced by subsoils subjected to increases in soil moisture content resulting from capillary or surface water.

Conditions that allow the soils to become saturated or significantly exceed typical moisture variations resulting from environmental conditions or exceed the dry and wet boundary conditions established by the TEX-124E method, such as poor drainage and/or broken utilities may result in 2 to 3 times or more the magnitude of moisture related soil movements than estimated by the PVR provided herein. Differential vertical movements may occur over a distance equal to the depth of the active zone and can potentially be equal to the expected total movements.

Typically undercutting and replacing the expansive soils is performed to reduce the PVR to an acceptable value for grade supported structures, whereas, stabilization of expansive subgrade soils is performed below pavements and non-movement sensitive flatwork.

PAVEMENT CONSIDERATIONS

In designing the proposed walking track, the existing subgrade conditions must be considered together with the expected use and loading conditions. The conditions that influence pavement design can be summarized as follows:

- Bearing values of the subgrade. These can be represented by a CBR and a Modulus of Subgrade Reaction (K), for flexible and rigid pavements, respectively.
- Expected traffic use, in terms of the number and frequency of vehicles and their range of axle loads.
- Probable increase in vehicular use over the life of the pavement.
- The availability of suitable materials to be used in the construction of the pavement and their relative costs.

Specific laboratory testing to define the subgrade strength (i.e. CBR and K value) has not been performed for this analysis. Based upon local experience, the estimated CBR and K values for the controlling clay soils encountered at the planned parking lot area are 3 and 100 pci, respectively.

Since anticipated usage conditions have not been provided, it is only possible to provide non-engineered pavement sections suitable for light-duty service based on pavement sections that have provided adequate serviceability for similar type facilities and on similar soils.

Allowances for proper drainage is most important for performance of pavements. Ruts, birdbaths, and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying subgrade soils.

Rigid Pavement Recommendations

The use of concrete for paving of walking trails has become more prevalent in recent years due to the long-term maintenance cost benefits of concrete pavement compared to asphaltic pavements. The recommended light-duty pavement section is provided in the following table. Light-duty rigid concrete pavements are recommended for pedestrian trails that will be exposed to occasional maintenance vehicles. If a heavier duty pavement is required, our office should be contacted to reevaluate our recommendations.

Rigid Pavement	Light-Duty	
	Option 1	Option 2
Reinforced Concrete	5 inches	5 inches
Lime Stabilized Subgrade (3.5%)	8 inches	--
Select Fill	--	12 inches

Concrete pavement should be properly reinforced and jointed, as per ACI, and should have a minimum 28 day compressive strength of 4,000 psi. Expansion joints should be sealed with an appropriate sealant so that moisture infiltration into the subgrade soils and resultant concrete deterioration at the joints is minimized. The joints should be thoroughly cleaned, and sealant should be installed without overfilling before pavement is opened to traffic.

Allowances for proper drainage and proper material selection of base materials are most important for performance of pavements. Ruts, birdbaths and poor site drainage allow for quick deterioration of the pavement primarily due to saturation of the underlying base materials and subgrade soils.

Pavement Subgrade Preparation

In areas where the pavements will be constructed, after all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade.

For Lime Treatment operations, upon completion of proof rolling, the lime stabilization operations shall be performed in accordance with TxDOT Item 260, "Lime Treatment for Materials Used As Subgrade (Road Mixed)". Based on the results of the Atterberg limits testing for the subgrade soils and associated curves provided in TxDOT Test Method 121-E, UES recommends that the lime be mixed at the rate of **3.5 percent**, based on the maximum dry unit weight of the raw subgrade soils as determined by the standard Proctor test (ASTM D698). The lime stabilized soils should be compacted to a minimum density of 98 percent of the maximum dry density, as determined by a standard Proctor test (ASTM D698), and at or above the optimum moisture content.

Routine Maintenance of Rigid Pavement Systems

The pavement section provided in this report is based on pavement sections constructed on similar subgrade soils and for facilities similar to those planned for construction at this site. The pavement will require routine maintenance such as crack sealing and seal coats for flexible pavements and joint maintenance for rigid pavement sections to achieve a desirable life of pavement.

Without proper maintenance, moisture infiltration into the base materials and/or subgrade will result in rapid deterioration of the pavement system. UES recommends that the owner protect their investment by incorporating an aggressive maintenance program.

SITE IMPROVEMENT METHODS

Concrete Flatwork Construction Considerations

Provisions in the site development should be made in order to maintain relatively uniform moisture contents of the supporting soils. A number of measures may be used to attain a reduction in subsoil moisture content variations. Some of these measures are outlined below:

- During construction, positive drainage schemes should be implemented to prevent ponding of water on the subgrade.

- Positive drainage should be maintained around the paved surfaces, transmitting water away from the perimeter and site flatwork. In addition, positive grades sloping away from the site flatwork should be designed and implemented.

- We recommend that an effective site drainage plan be devised by others prior to commencement of construction to provide positive drainage away from the site improvements and off the site, both during and after construction.

- Vegetation placed in landscape beds that are adjacent to the site flatwork should be limited to plants and shrubs that will not exceed a mature height of 3 feet. Large bushes and trees should be planted away from the foundation and flatwork at a distance that will exceed their full mature height and canopy width.

- Individual concrete panels of site flatwork should be dowelled together to minimize trip hazards as a result of differential movements within the flatwork.

- Site flatwork should be designed to drain quickly with a minimum positive slope of 1 percent.

All project features beyond the scope of those discussed above should be planned and designed similarly to attain a region of relatively uniform moisture content within the pavement and flatwork areas. Poor drainage schemes are generally the primary cause of pavement and flatwork problems in South Texas.

CONSTRUCTION CONSIDERATIONS

Site Preparation

Site clearing and grubbing operations should be performed at the site to remove organics, roots, rubble, deleterious matter or otherwise unsuitable soil or materials to a minimum depth of 6 inches, or deeper if needed for their complete removal. Deeper excavations may be needed to completely remove tree roots. This excavation should extend laterally outside the footprint of the pavement and systems of the project, for a minimum distance of 2 feet.

After all surface organics and deleterious materials have been removed to the desired subgrade elevation, the subgrade shall be proofrolled using a heavy pneumatic roller. Any soft areas identified shall be removed to firm soils, reworked and recompacted in place to obtain a stable and non-yielding subgrade. If the **"Select Fill"** pavement option is utilized, the upper 1 foot of exposed subgrade soils shall be moisture conditioned and recompacted to a minimum density of 95 percent of the maximum dry density as determined by the standard Proctor test (ASTM D698) and the moisture content shall be maintained at or above the optimum moisture content. If any soft areas are identified, the soils should be removed and recompacted in place.

Earthwork and Foundation Acceptance

Exposure to the environment may weaken the soils at the pavement bearing level if excavations remain open for long periods of time. Therefore, it is recommended that the pavement excavations be extended to final subgrade elevations and that the pavements be constructed as soon as possible to minimize potential damage to the bearing soils.

The pavement excavations should be free of loose soil, ponded water or debris, and should be observed prior to concreting by the Geotechnical Engineer, or his designated representative.

Concrete and flatwork constituents should not be placed on soils that have been disturbed by rainfall or seepage. If the subgrade soils are softened by surface water intrusion, or by desiccation, the unsuitable soils must be removed and be replaced with properly compacted soils or base material as directed by the Geotechnical Engineer.

The Geotechnical Engineer or his designated representative should monitor subgrade preparation. As a guideline, density tests should be performed on the exposed subgrade soils and each subsequent lift of compacted select fill soils at a rate of one test per 2,000 square feet or a minimum of three in-place nuclear tests per testing interval, whichever is greater. Any areas not meeting the required compaction should be recompacted and retested until compliance is met.

Select Fill

Imported select fill material used at this site should be homogenous, free from organics and other deleterious materials and should have a maximum liquid limit of 40 percent and a plasticity index (PI) between 7 and 18. The select fill soils shall have a minimum of 35 percent passing the #200 sieve and no soil particles exceeding 1½ inches will be permitted. The select fill should be placed in no greater than 8 inch thick loose lifts and then compacted to a minimum density of 98 percent of the maximum dry density, as determined by the standard Proctor test (ASTM D698), and at, or above, the optimum moisture content.

OSHA Soil Type Classification

The table below provides a summary of the OSHA Soil Type Classification based on the soils encountered at boring locations.

Soil Type Classification Table		
Depth (feet)	**Description**	**OSHA Soil Type Classification**
0-10	Cohesive Soil Above Water Table (average undrained shear strength greater than 500 psf)	Type B

It should be noted that the contractor's "competent person" shall make the final determination of the OSHA Soil Type during excavation of the soils at the jobsite. If OSHA Soil Type Classification is required greater than 10 feet below the existing grade, Please contact UES for additional information.

If groundwater is encountered during construction, all soils below the groundwater elevation or from which water freely seeps should be downgraded to Type C soils. Slope protection or slope benching is required for excavations greater than 5 feet for worker protection and trenching greater than 20 feet needs to be designed and sealed by a professional engineer registered in the State of Texas. The maximum allowable slopes during construction for soil OSHA soil types are provided below.

Guidelines for Maximum Allowable Slopes	
Soil or Rock Type	**Max. Allow. Slopes for Excavations < Than 20' Deep**
Type B	1 Horizontal : 1 Vertical
Type C	1½ Horizontal : 1 Vertical

Guidelines for maximum allowable slopes were obtained from OSHA documents, but do not take into account any recent revisions or the stability of long-term unprotected slopes. Long term unprotected slopes will likely require much flatter slopes. The guidelines presented herein for slopes do not imply UES is taking responsibility for construction site safety; this responsibility falls entirely upon the contractor and his responsible person. The contractor shall comply with all rules, ordinances and other requirements to comply with safe construction practices.

GENERAL COMMENTS

If significant changes are made in the character or location of the Wood River Elementary Walking Track project, a consultation should be arranged to review any changes with respect to the prevailing soil conditions. At that time, it may be necessary to submit supplementary recommendations.

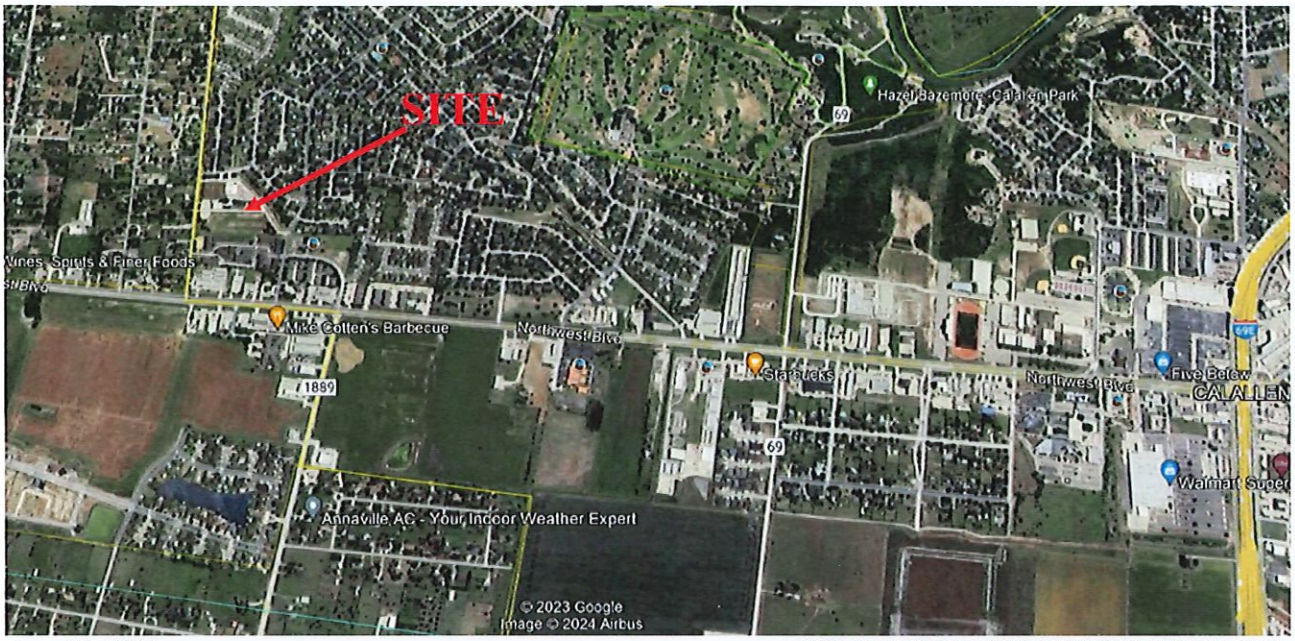
It is recommended that the services of UES be engaged to test and evaluate the soils in the excavations prior to concreting in order to verify that the bearing soils are consistent with those encountered in the boring. UES cannot accept any responsibility for any conditions that deviate from those described in this report, nor for the performance of the site improvements if not engaged to also provide construction observation and testing for this project. If it is required for UES to accept any liability, then UES must review and agree with the plans and perform such observation during construction as we recommend.

All dewatering, sheeting, shoring, and bracing of trenches, pits and excavations should be made the responsibility of the contractor and should comply with all current and applicable local, state and federal safety codes, regulations and practices, including the Occupational Safety and Health Administration.

APPENDIX

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

SITE VICINITY MAP



June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124174

WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas

Environmental
Geotechnical Engineering
Materials Testing
Field Inspections & Code Compliance
Geophysical Technologies

BORING LOCATION PLAN

June 28, 2024
Attn: Mrs. Emily Lorenz, Superintendent
Rock Engineering Job Number G124174

WOOD RIVER ELEMENTARY WALKING TRACK
15118 Dry Creek Drive
Corpus Christi, Texas

LOG OF BORING B-1

Rock Engineering and Testing Labratory, LLC.
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Wood River Elementary Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124174
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling
Dry and caved upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	ST S-1		P= 4.5+	16	36	15	21			56	**SANDY LEAN CLAY** (CL), with calcareous deposits, dark gray, moist, hard.
	2											
	3											
	4	ST S-2		P= 4.5+	14	42	12	30			51	Same as above, gray and brown. (CL)
	5											Boring terminated at 5 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilling operations performed by Rock Engineering at GPS coordinates N 27.86101 W 97.66116

LOG_OF_BORING G124174 WOODRIVER.GPJ ROCK_ETL.GDT 6/18/24

LOG OF BORING B-2

Rock Engineering and Testing Labratory, LLC.
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

CLIENT: Calallen Independent School District
PROJECT: Wood River Elementary Walking Track
LOCATION: Corpus Christi, Texas
NUMBER: G124174
DATE(S) DRILLED: 5/3/2024

DRILLING METHOD(S):
Solid Stem Augers

GROUNDWATER INFORMATION:
Groundwater not encountered during drilling
Dry and caved upon completion.

SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	1	ST S-1		P= 4.5+	13	43	14	29			51	**SANDY LEAN CLAY** (CL), gray and brown, moist, hard.
	2											
	3											
	4	ST S-2		P= 4.5+	13							Same as above, brown.
	5											
	6											
	7	ST S-3		P= 4.0	11	24	14	10			40	**CLAYEY SAND** (SC), brown, moist, very stiff.
	8											
	9	ST S-4		P= 3.0	7							Same as above, dry.
	10											Boring terminated at 10 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE

REMARKS:
Drilling operations performed by Rock Engineering at GPS coordinates N 27.86073 W 97.66037

LOG_OF_BORING G124174 WOODRIVER.GPJ ROCK_ETL.GDT 6/18/24

UES
6817 Leopard Street
Corpus Christi, Texas 78409
Telephone: (361)-883-4555
Fax: (361)-883-4711

KEY TO SOIL CLASSIFICATION AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well Graded Gravels or Gravel-Sand mixtures, little or no fines
		GP	Poorly Graded Gravels or Gravel-Sand mixtures, little or no fines
		GM	Silty Gravels, Gravel-Sand-Silt mixtures
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SAND AND SANDY SOILS	SW	Well Graded Sands or Gravelly Sands, little or no fines
		SP	Poorly Graded Sands or Gravelly Sands, little or no fines
		SM	Silty Sands, Sand-Silt Mixtures
		SC	Clayey Sands, Sand-Clay mixtures
	SILTS AND CLAYS LL < 50	ML	Inorganic Silts and very fine Sands, Rock Flour, Silty or Clayey fine Sands or Clayey Silts
		CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		OL	Organic Silts and Organic Silt-Clays of low plasticity
	SILTS AND CLAYS LL > 50	MH	Inorganic Silts, Micaceous or Diatomaceous fine Sandy or Silty soils, Elastic Silts
		CH	Inorganic Clays of high plasticity, Fat Clays
		OH	Organic Clays of medium to high plasticity, Organic Silts
NON USCS MATERIALS			Limestone
			Marl/Claystone
			Sandstone

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical

LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top

CRUMBLY - cohesive soils which break into small blocks or crumbs on drying

CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular

WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes

POORLY GRADED - predominantly of one grain size uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded)

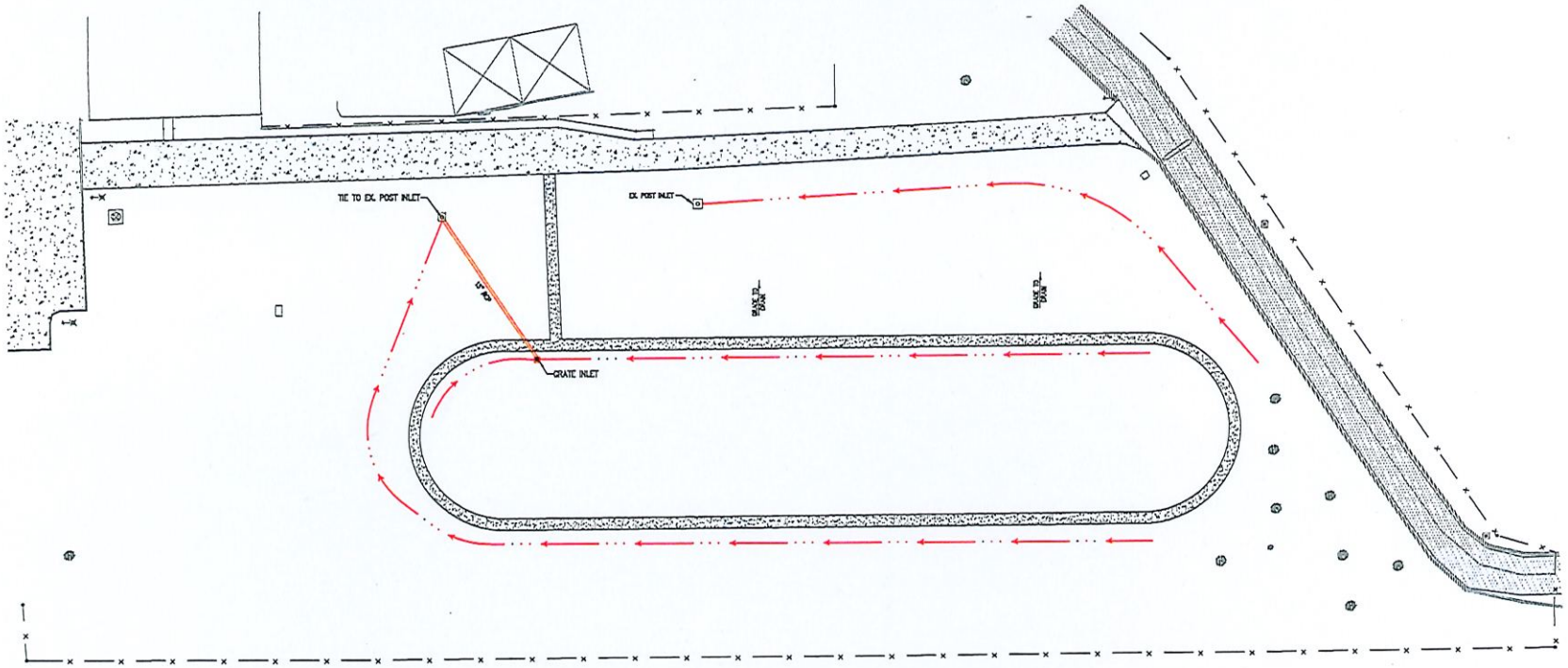
SYMBOLS FOR TEST DATA

- Groundwater Level (Initial Reading)
- Groundwater Level (Final Reading)
- Shelby Tube Sample
- SPT Samples
- Auger Sample
- Rock Core
- Texas Cone Penetrometer
- Grab Sample

TERMS DESCRIBING CONSISTENCY OF SOIL

COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	< 2	< 0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Medium	10 - 30	Firm	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

Field Classification for "Consistency" of Fine Grained Soils is determined with a 0.25" diameter penetrometer



PRELIMINARY
FOR REVIEW ONLY

NO.	REVISIONS	DATE

YORK ENGINEERING
CIVIL • PLANNING • CONSULTING

Exhibit - Schematic Site Plan

CALALLEN ISD WOOD RIVER WALKING TRACK

CORPUS CHRISTI, TEXAS

PROJECT NO. 1899-24-03

SHEET: 2.1

ATTACHMENT B

PROCUREMENT PROPOSAL RESPONSE PACKET

All Proposers must utilize the provided Procurement Proposal Response Packet as means of response to be considered. All pages in the provided packet must be completed and all required signatures present to be considered. Proposals and responses shall be direct, concise, and complete; prepared in a manner that provides a straightforward description of the respondent's ability to meet the requirements set forth in the RFCSP. Emphasis should be on completeness, clarity of content, responsiveness to the requirements, and an understanding of the District's needs.

Additionally, Proposer is required to enclose the following documentation to support their proposal:

- *Documentation reflecting proposed scope of work, including plans, specifications, and details of all products proposed*
- *Detailed timeline supporting completion of work by the defined Substantially Complete benchmarks*

VENDOR APPLICATION - REQUIRED FORM

Instructions:

1. The application form should be completed and signed by an authorized representative of the vendor.
2. The application must be submitted with all supporting documents and completed certifications.

Notice to Prospective Vendors:

1. Vendors are not placed on the district's approved vendor list until a purchase order is approved by the purchasing department.
2. Vendors must accept purchase orders for all purchases. The district will not be responsible for payment for goods or services that are provided to Calallen ISD staff without an approved purchase order issued.
3. All invoices must reflect the purchase order number and must be emailed or mailed to the Calallen ISD Accounts Payable Department (email address and mailing address are noted below).
4. All payments are net thirty (30) days after receipt of the goods and/or services.

VENDOR IDENTIFICATION:	
Vendor Full Legal Name	
Vendor DBA ***(if applicable)***	
Texas Taxpayer ID #	
VENDOR CONTACT INFORMATION:	
Vendor Mailing Address:	
Vendor Remit Address: ***(if different from mailing)***	
Vendor Phone Number:	
Vendor Fax Number:	
Vendor Website URL:	
Vendor Email Address: ***(for point of contact on procurement)***	

I hereby certify that the above information is true and correct. I further certify that I am an authorized representative of this vendor.

_____ _____

Authorized Representative (Print Name) Title

_____ _____

Authorized Representative (Signature) Date

RESPONDENT'S PROPOSAL - REQUIRED FORM

This form contains required responses that align with the District's advertised evaluation criteria and weights, and are developed to assist the District in methodology and evaluation.

DESCRIPTION OF PROPOSED SERVICES

The District is soliciting proposals from qualified vendors to provide for the following services. Detailed Technical Specifications and Construction Plans are provided as **Attachment A**.

- Magee Intermediate Fire Lane – conduct caliche road base repairs and paving upgrades.
- Magee Intermediate Walking Track - replace the existing asphalt walking track with concrete, construct a new concrete slab under the existing shade canopy, and construct new flatwork to provide access from the school to designated areas of the playground.
- Wood River Elementary Walking Track - replace the existing asphalt walking track and sidewalk from the bus lane with concrete.
- Vendors will be required to include pricing for all materials and spoils removed from these projects to an approved offsite facility. None of the materials will be retained or stored on Calallen district grounds.

EXPERIENCE, REPUTATION, AND REFERENCES – 30 POINTS TOTAL

1. References – all information provided in this response packet will be considered
2. In the last five (5) years has your organization: (if the answer to any question below is yes, please explain)
    a. Failed to complete any work awarded to it? _____
    b. Had any judgements, claims, arbitrations proceedings, or suits filed against your organization or its officers? _____
    c. Filed any judgements, claims, arbitrations proceedings, or suits with regard to contracts? _____
    d. Filed for bankruptcy? _____
    e. If the answer to any question above is yes, please explain: _____
    _____
    _____
3. Describe what experience your organization has in providing these services. _____
    _____
    _____
4. How many years has your organization provided these services to non-profits, school districts, and other governmental entities? _____

5. What makes your team unique and most qualified to deliver these services? _____

_____

_____

_____

6. What are the qualifications of the people who will be delivering the day-to-day services of the proposed contract? _____

_____

BASE PROPOSAL CONTRACTOR/SUB-CONTRACTOR LIST
Special Note: Provide the following contact information for any contractor associated with this proposal.
(Attached additional sheets as necessary)

CONTRACTOR/SUB-CONTRACTOR 1:
Company Name: _____

Address: _____

Contact Person: _____

Phone: _____

CONTRACTOR/SUB-CONTRACTOR 2:
Company Name: _____

Address: _____

Contact Person: _____

Phone: _____

CONTRACTOR/SUB-CONTRACTOR 3:
Company Name: _____

Address: _____

Contact Person: _____

Phone: _____

Note: All pages must be completed by Proposers and Submitted with Final Proposal.

PROJECT PERSONNEL AND QUALIFICATIONS – 10 POINTS TOTAL

1. What are the qualifications of the person overseeing the proposed services and contract? _____

   _____

   _____

2. Describe your organizations approach to providing quality work, and addressing and correcting unsatisfactory work:_____

   _____

   _____

3. What is your availability for this project? From the contract award date, in how many days can you begin from Notice to Proceed? _____

QUALITY OF PRODUCT AND WARRANTY INFORMATION – 10 POINTS TOTAL

Any and all materials proposed as part of this procurement must meet or exceed the specifications described within this document. **Proposer must provide** submittals, manufacturer cut sheets, warranty information, and any other additional information deemed necessary for all proposed materials and assemblies for review and consideration when evaluating the proposal.

1. Summarize Proposed Warranties:_____

   _____

   _____

PROPOSAL PRICE – 50 POINTS TOTAL

The District will consider the total contract cost as part of the evaluations. The District shall have the right to accept alternates in any order or combination unless otherwise specifically provided in the Proposal Documents, The Respondent submitting the lowest proposed cost shall receive the highest number of points in this category, and the Responded submitting the highest proposed cost shall receive the lowest number of points in this category. The District will use the Best Value method, where cost is not the sole determinate in evaluation and selection. Lowest cost does not automatically result in best value. **Vendors will be required to submit a Schedules of Values for the proposed work as well as part of your overall proposal.**

Magee Intermediate Base Proposal:

Fire Lane Upgrades: $_____;

Walking Track & Canopy Patio: $_____;

Playground Flatwork: $_____;

Note: All pages must be completed by Proposers and Submitted with Final Proposal.

Wood River Elementary Base Proposal:

Walking Track & Flatwork: $_____;

Base Proposal Summary:

Magee Intermediate Sub-Total $_____;

Wood River Elementary Sub-Total $_____;

Owner's Contingency (Required) $5,000.00;

GRAND TOTAL COST: **$_____;**

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) –

1. Is your organization a HUB? If so, please provide certificate. _____

PROPOSAL ENCLOSURES

Proposer is required to enclose the following documentation to support their proposal:

- Documentation reflecting proposed scope of work, including plans, specifications, and details of all products proposed
- Detailed timeline supporting completion of work by the defined Substantially Complete benchmarks
- Supplemental information may be provided in addition to the required Procurement Proposal Response Packet. Physical size of the supplemental information may not exceed 35 pages. The District at its sole discretion may elect to consider or disregard any supplemental information that is submitted in evaluating responses.

The undersigned confirms that the Vendor proposes to enter into a contract with Calallen ISD for services in accordance with the detailed technical specifications and construction plans provided in this proposal, for the prices set forth above. I have carefully reviewed, and understand, the terms, conditions, and specifications, of the requested services. I understand that Calallen ISD reserves the right to reject any or all proposals and to waive any informalities in the proposal, and to award the contract in the best interests of Calallen ISD. Respondent's Proposal Form and all required Proposal Enclosures defined above contains all required information above, and that all information is correct to the best of his/her knowledge.

_____ _____
Authorized Representative (Print Name) Title

_____ _____
Authorized Representative (Signature) Date

PROPOSAL RESPONSE CERTIFICATION - REQUIRED FORM

The undersigned authorized representative of the responding company indicated below hereby acknowledges:

1. That the respondent is authorized to enter into contractual relationship on behalf of the responding company indicated below.
2. That respondent has carefully examined this document in its entirety.
3. The respondent proposes to supply any products or services submitted under this solicitation in strict compliance with all terms, policies and procedures, unless any exceptions are noted.
4. That any and all exceptions have been noted in writing in the response and that no other exception will be claimed.
5. The accuracy of all certifications required which accompany this proposal.
6. The stated organization is an equal opportunity employer.
7. That any prices in this offer have been determined independently, without consultation, communication, or agreement for the purpose of restricting competition, as to any matter related to such prices, with any other Respondent or with any competitor.
8. That notice of award and/or any communication regarding an award will be submitted via GISD and not by any consultant, Respondent or other party involved in this solicitation.
9. That the organization has not been a party to any collusion among Respondent in restraint of freedom of competition by agreement to offer at a fixed price or to refrain from offering; or with any CISD employee, Board Trustee, or consultant as to quantity, quality, or price in the prospective contract, or in any terms of the prospective contract except in any authorized discussion(s) with CISD's Purchasing personnel; or in any discussions or actions between Respondent and any CISD employee, Board Trustee, or consultant concerning exchange of money or other things of value for special consideration in the award of this contract.
10. That neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
11. By submitting a Proposal, Respondent agrees to waive any claim it has or may have against the District, its trustees, agents and employees, and any reference sources, arising out of or in connection with the administration, evaluation, or recommendation of any Proposal; waiver of any requirements under the Proposal documents; acceptance or rejection of any Proposal; and award of the Proposal. The District shall have no contractual obligation to any Respondent, nor will any Respondent have any property interest or other right in the Proposal or contract being proposed unless and until the contract is unconditionally executed and delivered by all parties, and all conditions to be fulfilled by the Respondent have been fulfilled by the Respondent.

By submitting this proposal, the Respondent warrants that the Respondent has had the opportunity to carefully examine the site of the proposed work and all of the requirements of the RFCSP. The Respondent further warrants that the Respondent is satisfied that there are no conflicts in the bidding documents and that the site proposed for the project is suitable for the work. By submission of a proposal in response to this RFCSP, the Respondent confirms Respondent's understanding of the entire document and all of its contents. The Respondent also represents that its firm possesses the personnel, processes, and technology necessary to safely and efficiently perform the work outlined in this RFCSP.

Your signature below is the Proposal Response Certification acknowledgement.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

STATEMENT OF COMPLAINCE/DEVIATION FORM - REQUIRED FORM

DEVIATIONS. This form is a signed statement that all information in the response packet complies with all specifications, terms and conditions, scope, and/or qualifications contained in the solicitation document. If the undersigned Respondent intends to deviate from the listed specifications, terms and conditions, scope, and/or qualifications contained in the solicitation document, all such deviations must be listed on this page, with complete and detailed conditions and information included or attached. The District will consider any deviations in its award decisions, and reserves the right to accept or reject any proposal based upon any deviations indicated below or in any attachments or inclusions. In the absence of any deviation entry on this form, the Respondent assures Calallen ISD of their full compliance with the General Terms and Conditions, Item Specifications, and all other information contained in this Proposal Invitation. If you are requesting any deviations, please indicate those and attach them to this form.

_____ No Deviations _____ Yes Deviations

FORM OF CONTRACT: Any contract resulting from this solicitation shall be the AIA Document A105-2017. The Contract and exhibits thereto are all attached as ***ATTACHMENT C***. Proposers are required to delineate any comments or requested changes and include an explanation for the requested change in its response, otherwise the Proposer will be deemed to have accepted the form of Agreement as written. The final contract is subject to review and approval of the District's legal counsel. If you are requesting any modifications to the form of Agreement included with the RFP package, please indicate those and attach them to this form.

_____ No Changes to Form of Contract _____ Yes Changes to Form of Contract

RFP ADDENDUMS: The Proposer acknowledges receipt of the Addenda to this RFP: specifically, Addenda No.(s) (please list all you received) :

_____ No RFP Addendums Received _____ Yes RFP Addendums Received, Specifically, Addendum No.(s): _____

ATTACHMENTS. List any Attachments your company is submitting below (Attach additional sheet if necessary):

_____ No Attachments Included

Attachment Number: _____ Attachment Description: _____

Attachment Number: _____ Attachment Description: _____

_____ _____
Authorized Representative (Print Name) Title

_____ _____
Authorized Representative (Signature) Date

REFERENCES - REQUIRED FORM

Please complete the reference fields below. Vendor should list as references school districts and/or other governmental entities (other than Calallen ISD) for which vendor has provided products or services similar to what is requested on this proposal. Additional references for the can be provided as an attachment, but the minimum required for this proposal is 3 references.

Reference 1
Name of Entity:
Contact Name & Title:
Mailing Address:
Phone Number:
Email Address:
Date of Similar Products/Services Delivered:
Brief Description of Similar Products/Services Delivered:

Reference 2
Name of Entity:
Contact Name & Title:
Mailing Address:
Phone Number:
Email Address:
Date of Similar Products/Services Delivered:
Brief Description of Similar Products/Services Delivered:

Reference 3
Name of Entity:
Contact Name & Title:
Mailing Address:
Phone Number:
Email Address:
Date of Similar Products/Services Delivered:
Brief Description of Similar Products/Services Delivered:

The undersigned confirms the above information is correct to the best of his/her knowledge and understands the District may contact any of the above.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

SAFETY & SECURITY MEASURES - REQUIRED FORM

Student, instructor and all staff safety and campus security are of the upmost importance to the District, and safety and security measures are required by state law or prescribed for in District policy and procedures. Adherence to the District safety & security measures while on District premises is required. Each campus presents security concerns in terms of site access, traffic, classroom and non-classroom related functions. The work performed at each campus is directive in nature and work rules for each project can vary depending on the scope of work. CISD has responsibilities to the students, staff, the State of Texas and others to ensure that safety measures are strictly applied on each project.

1. **Requirements:**
    a) The Contractor, Subcontractor, their agents, and all others who perform Work on any District campuses are required to observe and abide by the campus security.
    b) The Contractor, Subcontractors, and their agents shall comply with the criminal history records checks requirements of Section 2 below.
    c) Contractor Supervisor and Designated Support Personal:
        i. Supervisor shall be present for all activities. If Owner finds out that the supervisor or their designated staff are not in responsible charge of the worksite, Owner may terminate work activities at the Contractors expense until such time the appropriate personnel are back in responsible charge.
        ii. Supervisor is responsible for securing the project site each day after work and shall confirm that the site is safe and secure. Check all interior and exterior doors, floor hatches, roof hatches, roof access doors, gates, temporary barricades and the like.
        iii. Supervisor is responsible for verifying that the project and site are clean after work each day. All trash is disposed of in approved containers. Floor surfaces are clean. Campus grounds are clear and all holes are covered up.
    d) RAPTOR Checks:
        i. All contractor personnel shall obtain a RAPTOR check upon their first day of work on the project. The Contractor is required to obtain a replacement badge if their badge gets damaged or becomes non-legible. All personnel will be issued a paper badge with their name, photo, and date of issue. This badge shall be affixed to a badge clip that shall be affixed to their uniform shirt in the upper torso area and shall be worn at all times.
        ii. Contractor shall obtain a new Raptor badge every month around the 1st day of the month regardless of the initial badge issued date. Contractor shall contact the Maintenance Office and schedule the quantity of personnel requiring retesting in advance so as to not overload the maintenance office regular school activities.
    e) Owner reserves the right to question all Contractor personnel and to perform additional background checks and safety and security screening as applicable at their discretions for any persons working on school district property.
    f) Campus Check-in Procedures:
        i. The Supervisor or designated staff shall check in at the main office of each school campus each workday and shall be responsible for facility access and control direct sub-contractor

supervision. Contractor personnel and sub-contractors are not required to check-in to a campus that has a Supervisor in responsible charge.

ii. All employees must check-in at the Maintenance for the 1st day at work and at the 1st of the month.

2. **Criminal History Records Checks**: Respondent should review the provisions of the form of agreement included with this procurement package regarding criminal history requirements. Please refer to Section 15.11 regarding Criminal History Records Checks in the proposed AIA Document A141-2014, *Standard Form of Agreement Between Owner and Design-Builder*, as modified by the Owner.

3. **Code of Conduct:**
   a) All Contractor, Subcontractors, and their agents shall be required to wear company uniforms with company name and logo clearly marked, RAPTOR tags that are currently up to date, and all appropriate and applicable safety gear such as hard hats at all times when on District premises. All attire shall be clean and presentable at the start of work each day.
   b) Interaction with students, faculty, and staff is discouraged. The District will not tolerate "cat-calling," "whistling," "profanity," or derogatory remarks.
   c) No smoking or tobacco products, illegal drugs or weapons or firearms are allowed on District premises.

I, the undersigned agent for the firm named below, certify that the information concerning safety & security measures has been reviewed by me, the following information furnished is true to the best of my knowledge and I acknowledge compliance with this section.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

CERTIFICATE OF RESIDENCY - REQUIRED FORM

Pursuant to Government Code, Chapter 2252 a district may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the greater of the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located, or the state in which a majority of the manufacturing relating to the contract will be performed. (Gov't Code 2252.002).

Definitions (Gov't Code 2252.001)

- "Governmental contract" means a contract awarded by a governmental entity, including a public school district, for general construction, an improvement, a service, or a public works project or for a purchase of supplies, materials, or equipment.
- "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state (Texas).
- "Nonresident bidder" refers to a person who is not a resident.

Indicate the certification of residency that applies:

_____ My company is a "resident Respondent"

_____ My company is a "nonresident Respondent" of _____(the state your principal place of business is located)

If applicable, does your "resident state" require Respondent whose principal place of business is in Texas to under Proposal, Respondents who resident state is the same as yours by a prescribes amount or percentage to receive a comparable contract?

_____ No

_____ Yes, the amount or percentage is _____

_____ _____
Authorized Representative (Print Name) Title

_____ _____
Authorized Representative (Signature) Date

CERTIFICATONS REGARDING LOBBYING, DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS, AND DRUG-FREE WORKPLACE REQUIREMENTS – REQUIRED FORM

Lobbying: This certification is required by the Federal Regulations, implementing Section 1352 of the Program Fraud and Civil Remedies Act, Title 31 U.S. Code, for the Department of Education (34 CFR Part 82), Department of Health and Human Services (45 CFR Part 93).

The undersigned contractor certifies that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan or cooperative agreement.

(2) If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form – LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Debarment, Suspension, and Other Responsibility Matters: This certification is required by the Federal Regulations, implementing, Executive Order 12549, Government-wide Debarment and Suspension, for the Department of Agriculture (7 CFR Part 3017), Department of Labor (29 CFR Part 98), Department of Education (34 CFR Parts 85, 668 and 682), Department of Health and Human Services (45 CFR Part 76).

The undersigned contractor certifies that neither it nor its principals:

(1) Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

(2) Have not within a three-year period preceding this contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, State or Local) transaction or contract under a public transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity with commission of any of the offenses enumerated in Paragraph (2) of this certification; and,

(3) Have not within a three-year period preceding this contract had one or more public transactions terminated for cause or default.

Where the prospective recipient of federal assistance funds is unable to certify to any of the statements in this certification, such prospective recipient shall attach an explanation to this certification.

Drug-Free Workplace: This certification is required by the Federal Regulations, implementing Sections 5151-5160 of the Drug-Free Workplace Act, 41 U.S.C. 701; for the Department of Agriculture (7 CFR Part 3017), Department of Labor (29 CFR Part 98), Department of Education (34 CFR Parts 85, 668 and 682), and Department of Health and Human Services (45 CFR Part 76).

The undersigned contractor certifies that it shall provide a drug-free workplace by:

(a) Publishing a policy statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the consequences of any such action by an employee;
(b) Establishing an ongoing drug-free awareness program to inform employees of the dangers of drug abuse in the workplace, the Contractor's policy of maintaining a drug-free workplace, the availability of counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed on employees for drug abuse violations in the workplace;
(c) Providing each employee with a copy of the Contractor's policy statement;
(d) Notifying the employees in the Contractor's policy statement that as a condition of employment under this contract, employees shall abide by the terms of the policy statement and notifying the Contractor in writing within five days after any conviction for a violation by the employee of a criminal drug statute in the workplace;
(e) Notifying the District within ten days of Contractor's receipt of a notice of a conviction of an employee; and,
(f) Taking appropriate personnel action against an employee convicted of violating a criminal drug statute or require such employee to participate in a drug abuse assistance or rehabilitation program.

These certifications are a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

TEXAS CORPORATE FRANCHISE TAX CERTIFICATION - REQUIRED FORM

Pursuant to Article 2.45, Texas Business Corporation Act, state agencies may not contract with for Profit Corporation's that are delinquent in making state franchise tax payments. The following certification that the corporation entering into this contract is current in its franchise taxes must be signed by the individual on Form 203, Corporate Board of Directors Resolution, to sign the contract for the corporation.

The undersigned authorized representative of the corporation contracting herein certifies that the following indicated statement is true and correct and that the undersigned understands making a false statement is a material breach of contract and is grounds for contract cancellation.

Indicate the certification that applies to your corporation:

_____ The Corporation is a for-profit corporation and certifies that it is not delinquent in its franchise tax payments to the State of Texas.

_____ The Corporation is a non-profit corporation or is otherwise not subject to payment of franchise taxes to the State of Texas.

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

CRIMINAL HISTORY RECORDS CHECKS - REQUIRED FORM

All Respondents and its subcontractors of every tier must comply with the Criminal History Records Checks prescribed by Texas Education Code, Section 22.08341 (the "statute") and found in Section 15.11 regarding Criminal History Records Checks in the proposed AIA Document A141-2014, *Standard Form of Agreement Between Owner and Design-Builder*, as modified by the Owner.

In accordance with the Statute, all Respondents will provide written certification to the District that (select one):

- ☐ Contractor and its Subcontractors of every tier, do not have any Covered Employees, as defined;
- ☐ Contractor and its Subcontractors of every tier are otherwise exempted from compliance with the requirement contained herein; or
- ☐ Contractor and its Subcontractors of every tier have complied with the statutory requirements of this Agreement as of this date.

Respondent agrees that if it receives information that a Covered Employee is arrested or convicted for any of the Disqualifying Criminal History offenses, during the performance of the Work, Contractor will immediately remove the Covered Employee from Owner's property or other location where students are regularly present, and notify the District of said removal within three (3) days of doing so.

I, the undersigned agent for the firm named below, certify that the information concerning criminal background checks has been reviewed by me, the following information furnished is true to the best of my knowledge and I acknowledge compliance with this section.

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

FELONY CONVICTION NOTICE - REQUIRED FORM

State of Texas Legislative Senate Bill No. 1, Section 44.034, Notification of Criminal History,
Subsection (a), states "a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or owner or operator of the business entity has been convicted of a felony." The notice must include a general description of the conduct resulting in the conviction of a felony.

Subsection (b) states "a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by
Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract."

You must check A, B or C and sign below:

_____ A. Our firm is a publicly held corporation, therefore, this reporting requirement is not applicable.

_____ B. Our firm is not owned or operated by anyone who has been convicted of a felony.

_____ C. Our firm is owned or operated by the following individual(s) who has/have been convicted of a felony.

Vendor Name: _____

Name of Individual(s): _____
(Attach additional sheets if necessary)

Details of Conviction(s): _____

_____
(Attach additional sheets if necessary)

I, the undersigned for the firm named below, certify that the information concerning notification of felony convictions has been by me and the following information furnished is true to the best of my knowledge.

_____ _____
Authorized Representative (Print Name) Title

_____ _____
Authorized Representative (Signature) Date

STATE ASSESSMENT CERTIFICATION - REQUIRED FORM

The undersigned authorized representative of the corporation contracting herein certifies that the following indicated statement is true and correct and that the undersigned understands making a false statement is a material breach of contract and is grounds for contract cancellation.

The corporation certifies that:

_____ It is current in Unemployment Insurance taxes, Payday and Child Labor law monetary obligations, and Proprietary School fees and assessments payable to the State of Texas.

_____ It has no outstanding Unemployment Insurance overpayment balance payable to the State of Texas.

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

REQUIRED STATE AND FEDERAL CERTIFICATIONS - REQUIRED FORM

Certification Regarding Terrorist Organizations. Pursuant to Sections 2252.151-.154 of the Texas Government Code, the Contractor hereby certifies that it is not a company identified on the Texas Comptroller's list of companies known to have contracts with, or provide supplies or services to, a foreign organization designated as a Foreign Terrorist Organization by the U.S. Secretary of State under federal law.

Certification Regarding Boycotting of Israel. Pursuant to Sections 2270.001-.002, 808.001-.006, .051-.057, .101-.102 of the Texas Government Code, the Contractor hereby certifies and verifies that neither the Contractor, nor any affiliate, subsidiary, or parent company of the Contractor, if any (the "Contractor Companies"), boycotts Israel, and the Contractor agrees that the Contractor and Contractor Companies will not boycott Israel during the term of this Agreement. For purposes of this Agreement, the term "boycott" shall mean and include terminating business activities or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory

---

The undersigned authorized representative of the corporation contracting herein certifies that the following indicated statement is true and correct and that the undersigned understands making a false statement is a material breach of contract and is grounds for contract cancellation.

The contractor certifies that:

_____ It is not doing business with any organization indicated on the Foreign Terrorist Organization list as so designated by the U.S. Secretary of State under Federal Law.

_____ that neither the Contractor, nor any affiliate, subsidiary, or parent company of the Contractor, if any (the "Contractor Companies"), boycotts Israel.

Certification Regarding Boycotting Energy Companies. Pursuant to Texas Government Code Chapter 2274, the Contractor hereby certifies and verifies that it does not boycott energy companies; and will not boycott energy companies during the term of the Agreement. This verification is not required for an agreement where a governmental entity determines that these requirements are inconsistent with the governmental entity's constitutional or statutory duties related to the issuance, incurrence, or management of debt obligations or the deposit, custody, management, borrowing, or investment of funds.

Certification Regarding Discriminating Against Firearm Industry. Pursuant to Texas Government Code Chapter 2274, the Contractor hereby certifies and verifies that it does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and will not discriminate during the term of the contract against a firearm entity or firearm trade association. The verification is not required for contracts with a

sole-source provider or if the governmental entity does not receive any bids from a company that is able to provide the required verification.

The undersigned authorized representative of the corporation contracting herein certifies that the following indicated statement is true and correct and that the undersigned understands making a false statement is a material breach of contract and is grounds for contract cancellation.

The contractor certifies that:

_____ By entering into this Agreement, the Contractor represents and warrants that: (1) it does not, and will not for the duration of the contract, boycott energy companies or (2) the verification required by Section 2274.002 of the Texas Government Code does not apply to the contract.

_____ By entering into this Agreement, the Contractor verifies that: (1) it does not, and will not for the duration of the contract, have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association or (2) the verification required by Section 2274.002 of the Texas Government Code does not apply to the contract

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

CONFLICT OF INTEREST QUESTIONNAIRE – FORM CIQ - REQUIRED FORM

A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with the district and:

1. Has an employment or other business relationship with a local government officer of the district, or a family member of the officer, described by Local Government Code 176.003(a)(2)(A);
2. Has given a local government officer of the district, or a family member of the officer, one or more gifts with the aggregate value specified by Local Government Code 176.003(a)(2)(B), excluding any gift described by Local Government Code 176.003(a-1); or
3. Has a family relationship with a local government officer of the district

---

The Vendor certifies that:

____ No conflict of interest exists

____ A possible or potential conflict of interest exists. Form CIQ completed (or attached) on the following page.

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

A copy of the form is attached hereto and must be submitted if applicable.

Note: All pages must be completed by Proposers and Submitted with Final Proposal.

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity — Date

Form provided by Texas Ethics Commission — www.ethics.state.tx.us — Revised 1/1/2021

CERTIFICATE OF INTERESTED PARTIES - REQUIRED FORM

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity or state agency may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the governmental entity or state agency at the time the business entity submits the signed contract to the governmental entity or state agency. The disclosure requirement applies to a contract entered into on or after January 1, 2016.

The requirement above applies only to a contract of a district that:

1. Requires an action or vote by the board before the contract may be signed;
2. Has a value of at least $1 million; or
3. Is for services that would require a person to register as a lobbyist under Government Code Chapter 305.

Gov't Code 2252.908

The disclosure requirement does not apply to a contract with:

1. A publicly traded business entity, including a wholly owned subsidiary of the entity;
2. An electric utility, as defined by Utilities Code 31.002; or
3. A gas utility, as defined by Utilities Code 121.001.

Gov't Code 2252.908(c)(4)–(6)

Filing Process: The commission has made available on its website a new filing application that must be used to file Form 1295. A business entity must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number. An authorized agent of the business entity must sign the printed copy of the form and have the form notarized. The completed Form 1295 with the certification of filing must be filed with Calallen ISD.

Form Availability: Certificate of Interested Parties Form is available from the Texas Ethics Commission website at the following address: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm For questions regarding and assistance in filling out this form, please contact the Texas Ethics Commission at 512-463-5800. A sample is attached hereto but must be submitted only.

The contractor certifies that:

____ Form 1295 filing is required and a certification of filing will be provided to Calallen ISD should we be awarded the contract

_____ Form 1295 filing is not required

_____	_____
Authorized Representative (Print Name)	Title
_____	_____
Authorized Representative (Signature)	Date

CERTIFICATE OF INTERESTED PARTIES — FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

4

Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 **Check only if there is NO Interested Party.** ☐

6 **UNSWORN DECLARATION**

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 12/22/2017

AFFIDAVIT OF NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING - REQUIRED FORM

By submission of this proposal, the undersigned certifies that:

1. Neither the Respondent nor any of Respondent's officers, partners, owners, agents, representatives, employees, or parties in interest, has in any way colluded, conspired, or agreed, directly or indirectly with any person, firm, corporation or other Respondent or potential Respondent any money or other valuable consideration for assistance in procuring or attempting to procure a contract or fix the prices in the attached proposal or the proposal of any other Respondent, and further states that no such money or other reward will be hereinafter paid.

2. No attempt has been or will be made by this company's officers, employees, or agents to lobby, directly or indirectly, the Calallen ISD Board of Trustees between proposal submission date and award by the Calallen ISD Board of Trustees.

3. No officer or stockholder of the Respondent is a member of the staff or related to any employee or Board of Trustees member of the Calallen ISD except as noted on Form CIQ (Conflict of Interest Questionnaire - attached).

4. The undersigned certifies that he/she is fully informed regarding the accuracy of the statements contained in this certification, and that the penalties herein are applicable to the Respondent as well as to any person signing in his/her behalf.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

ORIENTATION TO COMPLAINT PROCEDURES FOR SERVICE PROVIDERS – REQUIRED FORM

The policy of Calallen ISD herein referred to as "the District" is to resolve complaints in a fair and prompt manner. The Districts administrative directive on GRIEVANCE PROCEDURE establishes the guidelines for the resolution of grievances/complaints and requires this orientation sheet be received and acknowledged by all individuals or organizations providing services to the District under contract or agreement.

Acts of restraint, interference, coercion, discrimination or reprisal towards complainants exercising their rights to a file a grievance under District policy are prohibited. A complainant is the individual or organization filing a grievance/complaint. A respondent is the individual or organization against whom a grievance/complaint if filed. Inquiries regarding the resolution of grievances should be addressed to:

Calallen Independent School District
ATTN: Blair McDavid
4205 Wildcat Dr.
Corpus Christi, Texas 78410
Telephone: (361) 242-5600

Every effort should be made to resolve your grievance at the optimum management level. The District's EO Officer is available to assist, as necessary, in the grievance resolution process.

The time limit to file a complaint under the District's grievance procedure is 30 calendar days from the date of the event that leads to the filing of the grievance. A copy of the District's Policy and Procedure is available upon request.

EQUAL OPPORTUNITY IS THE LAW

The District is prohibited from discriminating on the ground of race, color, religion, sex, national origin, age, disability, political affiliation or belief, and for beneficiaries only. If you think that you have been subjected to discrimination, you may file a complaint within 180 days from the date of the alleged violation with the Equal Opportunity Officer at the:

TEXAS WORKFORCE COMMISSION
WORKFORCE DEVELOPMENT DIVISION
EQUAL OPPORTUNITY OFFICE
101 E. 15th STREET
AUSTIN, TEXAS 78778
Telephones: (512) 936-0342; (TDD): 1-800-RELAY TX, Voice 1-800-RELAY VV.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

CERTIFICATE OF LIABILITY - REQUIRED *(Provide Copy)*

Please provide a Copy of Your Certificate of Liability Insurance.

Provide actual Certificate of Liability Insurance as part of your proposal

CERTIFICATE OF LIABILITY INSURANCE					DATE	
PRODUCER **SAMPLE ONLY**					THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
					COMPANIES AFFORDING COVERAGE	
INSURED **SAMPLE ONLY**					COMPANY A	
					COMPANY B	
					COMPANY C	
					COMPANY D	
COVERAGES THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.							
CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				GENERAL AGGREGATE	$1,000,000.00
	X COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG	$1,000,000.00
	CLAIMS MADE X OCCUR				PERSONAL & ADV INJURY	$1,000,000.00
	X OWNERS PROTECTIVE LIABILITY				EACH OCCURRENCE	$1,000,000.00
	THE STATE OF TEXAS, IT'S EMPLOYEES, NAME INSURED (SEE BELOW)				FIRE DAMAGE (Any one fire)	$ 50,000.00
					MED EXP (Any one person)	$ 5,000.00
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$1,000,000.00
	ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	X SCHEDULED AUTOS				PROPERTY DAMAGE	$
	X HIRED AUTOS					$
	X NON-OWNED AUTOS					
	GARAGE LIABILITY				AUTO ONLY-EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				X WC STATUTORY LIMITS / OTHER	
	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: INCL / EXCL				EL EACH ACCIDENT	$ 500,000.00
					EL DISEASE-Policy Limit	$ 500,000.00
					EL DISEASE-Ea. Employee	$ 500,000.00
x	x OTHER: BUILDERS RISK				AMOUNT OF CONTRACT	
X	OWNRS PROTECTIVE LIABILITY NAMED INSURED, THE STATE OF TEXAS, IT'S EMPLOYEES					$1,000,000.00
DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS (PROJECT ADDRESS) **SAMPLE ONLY**						
CERTIFICATE HOLDER					**CANCELLATION**	
TEXAS WORKFORCE COMMISSION 101 East 15th Street, Room 226T Austin, Texas 78778-0001					SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEROF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE	

W9 TAXPAYER IDENTIFICATION CERTIFICATION - REQUIRED FORM

Provide a completed IRS Form W-9 as part of your proposal – available at https://www.irs.gov/forms-pubs/about-form-w-9.

Form W-9 (Rev. January 2011) Department of the Treasury Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification (required): ☐ Individual/sole proprietor ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶

☐ Other (see instructions) ▶

☐ Exempt payee

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number: ☐☐☐ - ☐☐ - ☐☐☐☐

Employer identification number: ☐☐ - ☐☐☐☐☐☐☐

Part II Certification

Under penalties of perjury, I certify that:

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

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

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

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

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

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

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

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

Cat. No. 10231X Form W-9 (Rev. 1-2011)

PAYMENT AND PERFORMANCE BONDS - REQUIRED FORM

A district that makes a public work contract with a prime contractor shall require the contractor, before beginning the work, to execute to the district:

1. A performance bond if the contract is in excess of $100,000; and
2. A payment bond if the contract is in excess of $25,000.

A bond required by this provision must be executed by a corporate surety in accordance with Insurance Code Article 7.19-1 (now Insurance Code 3503.001–.005). A bond for a public work contract with a district must be payable to and its form must be approved by the awarding board. *Gov't Code 2253.021(a), (d)–(e).*

The performance bond is solely for the protection of the district awarding the public work contract, in the amount of the contract, and conditioned on the faithful performance of the work in accordance with the plans, specifications, and contract documents. *Gov't Code 2253.021(b).*

The payment bond is solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the prime contractor or a subcontractor to supply public work labor or material, and in the amount of the contract. *Gov't Code 2253.021(c).*

The contractor certifies that:

____ A performance bond is required and will be provided to Calallen ISD should we be awarded the contract

_____ A performance bond is not required

____ A payment bond is required and will be provided to Calallen ISD should we be awarded the contract

_____ A payment bond is not required

_____ _____
Authorized Representative (Print Name) Title

_____ _____
Authorized Representative (Signature) Date

PREVAILING WAGE SCHEDULES - REQUIRED FORM

Respondents are required to comply with Texas Government Code, Chapter 2258 Prevailing Wage Rates, with respect to payment of prevailing wage rates for the construction or improvements, paid for in whole or in part from public funds, without regard to whether the work is done under public supervision or direction. A worker is employed on a public work if the worker is employed by the Respondent or any subcontractor in the execution of the contract for the project.

The District has adopted the federal Davis-Bacon wage rates for the use in Texas pursuant to and in accordance with the Texas Government Code, Section 2258.022. The District's prevailing wage rate is provided as Exhibit C to ATTACHMENT C the STANDARD SHORT FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR, AIA DOCUMENT A105-2027.

Please sign below confirming receipt of the District's current Prevailing Wage Rate Schedule. Contractor will be required to pay these wages as set out in the form of Agreement.

Authorized Representative (Print Name)	Title
Authorized Representative (Signature)	Date

ATTACHMENT C

STANDARD SHORT FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR, AIA DOCUMENT A105-2017, AS MODIFIED BY THE OWNER

See separate documents provided as .pdf upon request.

AIA® Document A105® – 2017

Standard Short Form of Agreement Between Owner and Contractor

AGREEMENT made as of the _____ day of _____ in the year Two Thousand Twenty-Four (2024)
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Calallen Independent School District, a public school district and political subdivision of the State of Texas
4205 Wildcat Drive
Corpus Christi, Texas 78410
Phone: (361) 242-5600
and the Contractor:
(Name, legal status, address and other information)

EXHIBIT ONLY – NOT TO BE COMPLETED UNTIL AFTER BOARD ACTION

Name: _____
Type of Entity: _____
Address: _____
_____
Phone: _____

for the following Project:
(Name, location and detailed description)

Calallen ISD 2023 Bond Project – Projects at Wilma Magee Intermediate School and Wood River Elementary School

The Architect:
(Name, legal status, address and other information)

York Engineering, Inc., a corporation of the State of Texas
9708 S. Padre Island Dr. Ste A200
Corpus Christi, Texas 78418
Phone: (316) 245-9400

*Architect herein shall mean Engineer.
The Owner and Contractor agree as follows:

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

.1 this Agreement signed by the Owner and Contractor;

.2 the drawings and specifications prepared by the Architect and attached as Exhibit C ***OR***, dated _____, and enumerated as follows:

Drawings:

Number	Title	Date

(Table Deleted)

Specifications:

Section	Title	Pages

(Table Deleted)

.3 addenda prepared by the Architect as follows:

Number	Date	Pages

(Table Deleted)

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

Exhibit A, Owner's Prevailing Wage Rate Schedule

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.
(Insert the date of commencement if other than the date of this Agreement.)

Upon Owner's issuance of a Notice to Proceed.

§ 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:
(Check the appropriate box and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of

[X] By the following date:

ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:
(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value

(Table Deleted)

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:
(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:
(Identify each allowance.)

Item	Price

(Table Deleted)

§ 3.5 Unit prices, if any, are as follows:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

(Table Deleted)

ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12.
(Insert below timing for payments and provisions for withholding retainage, if any.)

§ 4.2 Undisputed payments remaining unpaid under the Contract on the 31st day after the date the Owner receives a properly documented Certificate of Payment from the Architect are considered overdue and in accordance with the Texas Prompt Payment Act, Texas Government Code Chapter 2251, shall bear interest from that date until the date that the Owner mails or electronically transmits payment, including accrued interest to that date.
(Insert rate of interest agreed upon, if any.)

Not applicable.

ARTICLE 5 INSURANCE AND BONDS

§ 5.1 CONTRACTOR'S INSURANCE

§ 5.1.1 The Contractor and the Contractor's Subcontractors shall purchase and maintain in force, insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the table below, the Agreement, or elsewhere in the Contract Documents. No work will be commenced, and no equipment or materials may be shipped, until all requirements of Article 5 have been satisfied, satisfactory evidence of insurance has been provided, and all required insurance is in full force and effect. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the State of Texas. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with

copies, certified by the carrier(s), of insurance policies required under this Article 5. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in this Agreement, unless a different duration is stated below:

Workmen's Compensation: (Including Waiver of Subrogation Endorsement)	All liability arising out of Contractor's employment of workers and anyone for whom Contractor shall be liable for Worker's Compensation claims. Worker's Compensation is required and no "alternative" form of insurance shall be permitted.
Employer's Liability:	$1,000,000.00
Commercial General Liability:	
Each Occurrence	$1,000,000.00
General Aggregate	$2,000,000.00 (A Designated Construction Project General Aggregate Limit shall be provided)
Personal & Advertising Injury	$1,000,000.00 each person
Products and Completed Operations	$1,000,000.00 (for one (1) year, commencing with issuance of final Certificate for Payment)
Property Damage:	$2,000,000.00 aggregate
Independent Contractors	(Same limits as above)
Contractual Liability	(Same limits as above)
Automobile Liability:	
Bodily Injury/Property Damage	$1,000,000.00 combined single limit
Property Damage	$1,000,000.00 each occurrence
Umbrella/Excess	$1,000,000.00

§ 5.1.2 The required insurance must be written by a company licensed to do business in Texas at the time the policy is issued. In addition, the company must be rated at least A-VIII by A.M. Best's Key Rating Guide. The Owner's Representative will contact the State Board of Insurance to confirm that the issuing companies are admitted and authorized to issue such policies in the State of Texas.

§ 5.1.3 The General Liability and Automobile so issued in the name of Contractor shall also name the Owner and subcontractors as additional insureds, as their respective interests may appear. The coverage afforded to the additional insured under the policy or policies shall be primary insurance. It is the intent of the parties to this Agreement that the General Liability coverage required herein shall be primary to and shall seek no contribution from all insurance available to Owner, with Owner's insurance being excess, secondary and non-contributing. The Commercial General Liability coverage provided by Contractor shall be endorsed to provide such primary and non-contributing liability. If the additional insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis.

§ 5.1.4 If the insurance is written with stipulated amounts deductible under the terms of the policy, the Contractor shall pay the difference attributable to deductions in any payment made by the insurance carrier on claims paid by this insurance. If the Owner is damaged by the failure of the Contractor to maintain such insurance and to so notify the Owner then the Contractor shall bear all reasonable costs properly attributable thereto.

§ 5.1.5 The insurance required by Section 5.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction

of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others.

§ 5.1.6 Contractor shall have its insurance carrier(s) furnish to Owner with ISO ACORD Form 25 insurance certificates specifying the types and amounts of coverage in effect, the expiration dates of each policy, and a statement that no insurance will be canceled or materially changed while the Work is in progress without thirty (30) calendar day's prior written notice to Owner. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with copies, certified by the carrier(s), of insurance policies required in Section 5.1.1. If Contractor neglects or refuses to provide any insurance required herein, or if any insurance is canceled, Owner may, but shall not be obligated to, procure such insurance and the provisions of Section 5.1.8 hereof shall apply.

§ 5.1.7 Contractor and its contractors shall not commence the shipment of equipment or materials or commence the Work at the site until all of the insurance coverage required of Contractor and its contractors are in force and the necessary certificates and statements pursuant to Section 5 hereof have been received by Owner and the Architect has issued a written notice to proceed.

§ 5.1.8 As an alternative and at Owner's option and expense, Owner may elect to furnish or to arrange for any part or all of the insurance required by Section 5.1 hereof. If Owner so elects, it shall notify, in writing, Contractor and issue a Change Order therefor, but no adjustment to the scheduled completion date or the Contract Sum shall be allowed.

§ 5.1.9 Workers' Compensation Insurance Coverage.

.1 Definitions:

.1.1 Certificate of coverage ("Certificate"). A copy of a certificate of insurance, a certificate of authority to self-insure issued by the division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

.1.2 Duration of the Project. Includes the time from the beginning of the work on the Project until the Contractor's work on the Project has been completed and accepted by the Owner.

.1.3 Persons providing services on the Project ("subcontractor" in Texas Labor Code §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 contracts directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service 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.

.2 The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which 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.

.3 The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.

.4 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 Owner showing that coverage has been extended.

.5 The Contractor shall obtain from each person providing Services on a Project, and provide to the Owner:

.5.1 a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

.5.2 no later than seven (7) 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.

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

.7 The Contractor shall notify the Owner in writing by certified mail or personal delivery, within ten (10) 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.

.8 The Contractor shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, 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.

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

.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which 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;

.9.2 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 the Project, for the duration of the Project;

.9.3 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;

.9.4 obtain from each other person with whom it contracts, and provide to the Contractor:

(a) a certificate of coverage, prior to the other person beginning work on the Project; and

(b) a new certificate of coverage showing 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;

.9.5 retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter;

.9.6 notify the Owner in writing by certified mail or personal delivery, within ten (10) 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

.9.7 contractually require each person with whom it contracts, to perform as required by Subparagraphs .9.1 - .9.7 with the certificates of coverage to be provided to the person for whom they are providing services.

.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner 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 Texas Department of Insurance, 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.

.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner. [28 TAC §110.110(c)(7)]

§ 5.1.10 The Contractor shall provide an Installation Floater or Builder's Risk Insurance to cover the total value of the entire Project on a replacement cost basis, with the Owner named as an Additional Insured.

§ 5.2 PERFORMANCE BOND AND PAYMENT BOND

§ 5.2.1 If the Contract Sum in Article 3 is in excess of $100,000, the Contractor is required, as a condition precedent to the execution of the Contract, to execute a PERFORMANCE BOND in the form required by TEXAS STATUTES, in the amount equal to ONE HUNDRED PERCENT (100%) of the total combined accepted bid(s).

§ 5.2.2 If the Contract Sum in Article 3 is in excess of $25,000, the Contractor
is required, as a condition precedent to the execution of the Contract, to execute a PAYMENT BOND in the form required by TEXAS STATUTES, in the amount equal to ONE HUNDRED PERCENT (100%) of the total bid as security for payment of all persons performing labor and furnishing materials in connection with this Contract. (Bonding Company is to furnish such forms). All bonds shall name the Owner as additional obligee.

(Table Deleted)

§ 5.2.3 The Bond(s) shall meet requirements of Chapter 2253 of the Texas Governmental Code. All bonds shall be issued by a surety company licensed, listed and authorized to issue bonds in the State of Texas by the Texas Department of Insurance. The surety company may be required by the Owner to have a rating of not less than AB@ in the latest edition of Best's Insurance Reports, Property-Casualty. The surety company shall provide, if requested, information on bonding capacity, other projects under coverage and shall provide proof to establish adequate financial capacity for this project.

Should the bond amount be in excess of ten percent (10%) of the surety company's capital and surplus, the surety company issuing the bond shall certify that the surety company has acquired reinsurance, in a form and amount acceptable to the Owner, to reinsure the portion of the risk that exceeds ten percent (10%) of the surety company's capital and surplus with one or more reinsurers who are duly authorized and admitted to do business in Texas and that amount reinsured by an reinsurer does not exceed ten percent (10%) of the reinsurer's capital and surplus.

The Sureties shall promptly file a signed copy of the Contract, Performance, and Payment Bonds with the Owner in full compliance with Chapter 2253 of the Texas Governmental Code.

§ 5.2.4 All bonds will be reviewed by the Owner for compliance with the Contract Documents prior to execution of the contract. In the event that the Owner has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's representative for review and decision.

§ 5.2.5 All bonds shall be originals. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the Power-of-Attorney. The name, address, and telephone number of a contact person for the bonding company shall be provided.

§ 5.2.6 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 5.2.7 Bonds shall be signed by an agent resident in the State of Texas and the date of the bond shall be the date of execution of the contract. If at any time during the continuance of the contract, the surety of the Contractor's bonds becomes insufficient, Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) business days after notice to do so. In default thereof, the Contractor may be suspended, and all payment or money due to the Contractor withheld.

§ 5.2.8 By inclusion of this Subsection in the Contract Documents, the surety which issues the bonds is hereby notified that the Owner and its agents and employees do not represent and will not be responsible for the surety's interests during the course of the Work. To protect its interests, the surety shall have the right to attend pay estimate meetings, review Applications for Payment when requested in writing by them, comment upon and make recommendations regarding payments, and inspect the Work in the presence of the Contractor and the Owner. By providing the bonds for the Work, the surety shall and hereby waives any cause of action against the Owner, its agents and employees, for any loss suffered by the surety by reason of overpayment of any amounts to the Contractor, unless such is a direct result of a fraudulent or grossly negligent act committed by such party.

ARTICLE 6 GENERAL PROVISIONS

§ 6.1 The Contract

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

§ 6.2 The Work
The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

§ 6.3 Intent
The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents
Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

§ 6.5 Electronic Notice
Written notice under this Agreement may be given by one party to the other by email as set forth below.
(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)

Owner's representative:
(Name, address, email address, and other information)
Emily Lorenz, Superintendent of Schools
Calallen Independent School District
4205 Wildcat Drive, Corpus, Christi, Texas 78410-5198
Phone: (361) 242-5600
Email: elorenz@calallen.org

Contractor's representative:
(Name, address, email address, and other information)
EXHIBIT ONLY – TO BE COMPLETED AFTER BOARD ACTION

Representative's Name: _____
Representative's Title: _____
Company Full Legal Name: _____
Address: _____
Company Phone: _____
Cell Phone: _____
Email: _____

ARTICLE 7 OWNER
§ 7.0.1 The Owner is the Board of Trustees of the Calallen Independent School District and is referred to throughout the Contract Documents as if singular in number. The Owner may designate in writing one or more persons to represent the Owner; however, such representatives shall have the authority to bind the Owner only to the extent expressly authorized by the Owner and shall have no implied authority. Neither the Architect nor the Contractor may rely upon the direction of any employee of Owner who has not been so designated as Owner's representative. Owner shall not be financially responsible for actions taken by the Architect or Contractor in reliance upon direction from unauthorized persons.

§ 7.0.2 The Contractor acknowledges that no lien rights exist with respect to public property. Under the laws of the State of Texas, neither the Contractor nor any sub-contractor, mechanic, materialman or laborer, is entitled to acquire or attempt to acquire or contract for any lien upon the improvements covered by this Contract or the land

upon which they are situated.

§ 7.1 Information and Services Required of the Owner

§ 7.1.1 If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

§ 7.1.2 Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

§ 7.1.3 Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

§ 7.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is defective or not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

§ 7.3 Owner's Right to Carry Out the Work

If the Contractor is in default on any of its material obligations hereunder, neglects to timely carry out the Work in accordance with the Contract Documents, or fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or non-conforming or defective Work with diligence and promptness, the Owner may, without prejudice to other remedies, correct such defaults or such non-conforming or defective Work. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts

§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

ARTICLE 8 CONTRACTOR

§ 8.1 Review of Contract Documents and Field Conditions by Contractor

§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to Architect, the Contractor shall assume appropriate responsibility for any such performance and shall bear an appropriate amount of the attributable costs for correction. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents, however any apparent design errors or omissions noted by the Contractor during this review shall be reported promptly to the Architect.

§ 8.2 Contractor's Construction Schedule

The Contractor's initial schedule shall be provided with the proposal in response to the Owner's procurement for this Project. As part of the response, Contractor shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The Contractor, promptly after being awarded the Contract, will also prepare and submit for the Owner's and Architect's information a Contractor's final coordinated construction schedule for the Work.

§ 8.3 Supervision and Construction Procedures

§ 8.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents gives specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and except as stated below shall be fully and solely responsible for the jobsite safety of such means, methods, techniques sequences or procedures. If the Contractor determines that such means, methods, techniques, or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed by the Owner, in writing, to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by Contractor, the Owner shall be solely responsible for any loss or damage arising solely from the Owner-required means, methods, techniques, sequences or procedures.

§ 8.3.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

§ 8.4 Labor and Materials

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for qualified, careful, and efficient workers and labor, eligible to work in accordance with state and federal law. Contractor shall appropriately classify all workers in accordance with the Fair Labor Standards Act, its implementing regulations, and Texas Labor Code Section 214.008. In addition, unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Contractor shall be responsible for the actions of Contractor's forces, Subcontractor's forces and all tiers of Sub-subcontractor's forces. The Contractor recognizes that the Project Site is a public school campus, and will prohibit the possession or use of alcohol, controlled stances, tobacco, and any prohibited weapons on the Project Site and shall require adequate dress of the Contractor's forces consistent with the nature of the Work being performed, including wearing shirts at all times. Sexual harassment of employees of the Contractor or employees or students of the Owner by employees of the Contractor is strictly forbidden. Any employee of the Contractor who is found to have engaged in such conduct shall be subject to appropriate disciplinary action by the Contractor, including removal from the job site.

§ 8.4.3 PREVAILING WAGES

The Project is subject to the Texas Government Code, Chapter 2258, Prevailing Wage Rates. This statute requires the Contractor and any Subcontractor to pay not less than the prevailing rates of per diem wages in the locality at the time of construction to all laborers, workmen, and mechanics employed by them in the execution of the contract.

§ 8.4.3.1 In accordance therewith, the Owner has established a scale of prevailing wages which is incorporated in the Contract as Exhibit B, and not less than this established scale must be paid on the Project. Any workers not included in the schedule shall be properly classified and paid not less than the rate of wages prevailing in the locality of the Work at the time of construction.

§ 8.4.3.2 A Contractor or Subcontractor who violates the provisions of Section 8.4.3 shall pay to Owner the sum of Sixty Dollars and No/100 ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rate stipulated in the scale of prevailing wages applicable to this Project, as required by Texas Government Code Section 2258.023(b).

§ 8.4.3.3 Substitutions will not be accepted unless approved through the procedures set forth in the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum, regardless of acceptance or rejection,

amounts paid to the Architect to evaluate the Contractors proposed substitutions. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect to make agreed upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

§ 8.4.3.4 The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project.

§ 8.5 Warranty

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

§ 8.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

§ 8.5.2 The Contractor agrees to assign to the Owner at the time of final completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties. As a condition precedent to final payment, the Contractor shall submit to Owner a complete set of warranties from subcontractors, manufacturers, or suppliers as appropriate, and executed by Contractor as required, with a warranty commencement date as required by the Contract Documents.

§ 8.5.3 Contractor's express warranty herein shall be in addition to, and not in lieu of, any other remedies Owner may have under this Agreement, at law, or in equity for defective Work.

§ 8.5.4 The warranty provided in Section 8. shall be in addition to and not in limitation of any other warranty or remedy required by law or by the Contract Documents, and such warranty shall be interpreted to require Contractor to replace defective materials and equipment and re-execute defective Work which is disclosed to the Contractor by the Owner within a period of one (1) year after Substantial Completion of the entire Work or if latent defect, within one (1) year after discovery thereof by Owner.

§ 8.5.5 The Contractor shall issue in writing to the Owner as a condition precedent to final payment a "General Warranty" reflecting the terms and conditions of Sections 8.5.1 and 8.5.2 for all Work under the Contract Documents. This General Warranty shall be assignable. Submittal of all warranties and guarantees are required as a prerequisite to the final payment.

§ 8.5.6 Except when a longer warranty time is specifically called for in the Specification Sections, herein, or is otherwise provided by law, the General Warranty shall be for twelve (12) months and shall be in form and content otherwise satisfactory to the Owner. Contractor acknowledges that the Project may involve construction work on more than one (1) building for the Owner. Each building, or approved phase of each building, shall have its own, separate, and independent date of Substantial Completion or Final Completion. Contractor shall maintain a complete and accurate schedule of the dates of Substantial Completion, dates upon which the one (1) year warranty on each phase or building which is substantially complete will expire, and dates of Final Completion. Contractor agrees to provide notice of the warranty expiration date to Owner at least one (1) month prior to the expiration of the one (1) year warranty period on each building or each phase of the building which has been substantially completed. Prior to termination of the one (1) year warranty period, Contractor shall accompany the Owner on re-inspection of the building and be responsible for correcting any reasonable additional deficiencies not caused by the Owner or by the use of the building

which are observed or reported during the re-inspection. For extended warranties required by various sections, i.e. roofing, compressors, mechanical equipment, Owner will notify the Contractor of deficiencies and Contractor shall start remedying these defects within three (3) days of initial notification from Owner. Contractor shall prosecute the work without interruption until accepted by the Owner, even though such prosecution should extend beyond the limit of the warranty period. If Contractor fails to provide notice of the expiration of the one (1) year warranty period at least one (1) month prior to the expiration date, Contractor's warranty obligations described in this Section shall continue until such inspection is conducted and any deficiencies found in the inspection corrected.

§ 8.5.7 Warranties shall become effective on a date established by the Owner in accordance with the Contract Documents. This date shall be the Date of Substantial Completion of the entire Work, unless otherwise provided in any Certificate of Partial Substantial Completion approved by the parties, except for work to be completed or corrected after the date of Substantial Completion and prior to final payment. Warranties for work to be completed or corrected after the date of Substantial Completion and prior to final payment shall become effective on the later of the date the work is completed or corrected and accepted by the Owner or the date of final payment.

§ 8.6 Taxes

The Contractor shall not include in the Contract Price or any Modification any amount for sales, use, or similar taxes for which (1) a Texas independent school district is exempt, and (2) the Owner has provided the Contractor with a tax exemption certificate or other documentation necessary to establish the Owner's exemption from such taxes. CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMANDS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS. Contractor shall cooperate with Owner, take such action and execute such documents as may be necessary so that Owner may utilize its exemption from the Texas Sales and Use Tax for materials used in such Project. The tax-exempt identification number for the Calallen Independent School District is 1-74-6000464-1.

§ 8.7 Permits, Fees and Notices

§ 8.7.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

§ 8.8 Submittals

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

§ 8.9 Use of Site

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

§ 8.10 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 8.11 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

§ 8.12 Indemnification

§ 8.12.1 TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY, DEFEND (EXCEPT AS LIMITED BELOW) AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES (HEREINAFTER IN THIS SECTION 8.12 "OWNER"), FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, (INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), ARISING OUT OF OR RESULTING FROM PERFORMANCE OF THE WORK, PROVIDED THAT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF), INCLUDING THE LOSS OF USE RESULTING THEREFROM, CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEMTHE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. SUCH OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR REDUCE OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY THAT WOULD OTHERWISE EXIST AS TO A PARTY OR PERSON DESCRIBED IN THIS SECTION 8.12.

§ 8.12.2 IN CLAIMS AGAINST ANY PERSON OR ENTITY INDEMNIFIED UNDER THIS SECTION BY AN EMPLOYEE OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER SECTION 8.12.1 SHALL NOT BE LIMITED BY A LIMITATION ON AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR SUBCONTRACTOR UNDER INSURANCE POLICIES, WORKERS' COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.

§ 8.12.3 THE DUTY TO DEFEND SET OUT ABOVE SHALL NOT APPLY IN THE EVENT THAT THE CLAIM IS BASED, IN WHOLE OR IN PART, ON THE NEGLIGENCE OF, FAULT OF, OR BREACH OF CONTRACT BY THE OWNER. NOTWITHSTANDING THE FOREGOING, THE CONTRACTOR AGREES TO REIMBURSE THE OWNER'S REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE CONTRACTOR'S LIABILITY.

§ 8.12.4 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL HOLD OWNER FREE AND HARMLESS FROM LIABILITY RESULTING FROM LOSS OF OR DAMAGE TO CONTRACTOR'S OR ITS SUBCONTRACTORS' CONSTRUCTION TOOLS AND EQUIPMENT AND RENTED ITEMS WHICH ARE USED OR INTENDED FOR USE IN PERFORMING THE WORK, REGARDLESS OF WHETHER SUCH LOSS OR DAMAGE IS CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. THIS PROVISION SHALL APPLY, WITHOUT LIMITATION, TO LOSS OR DAMAGE OCCURRING AT THE WORK SITE OR WHILE SUCH ITEMS ARE IN TRANSIT TO OR FROM THE WORK SITE AND IS IN ADDITION TO CONTRACTOR'S OBLIGATIONS UNDER SECTION 8.12.1.

§ 8.12.4 Indemnification hereunder shall include, without limiting the generality of the foregoing, liability which could arise to the Owner, its agents, consultants, and representatives pursuant to State statutes for the safety of workmen and in addition, all Federal statutes and rules existing thereunder for protection, occupational safety and health to workmen. It being agreed that the primary obligation of the Contractor is to comply with said statutes in performance of the Work by Contractor and that the obligations of the Owner, its agents, consultants, and representatives under said statutes are secondary to that of the Contractor.

ARTICLE 9 ARCHITECT

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, in accordance with the Contract Documents, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect or the Owner has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

ARTICLE 10 CHANGES IN THE WORK

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

ARTICLE 11 TIME

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

ARTICLE 12 PAYMENTS AND COMPLETION

§ 12.1 Contract Sum

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 12.2 Applications for Payment

§ 12.2.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price as applicable, the Contractor shall submit to the Architect, before the first Application for Payment, or, in the case of a Guaranteed Maximum Price, concurrent with the Guaranteed Maximum Price Proposal, a schedule of values, allocating the entire Contract Sum to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect or Owner, shall be used in reviewing the Contractor's Applications for Payment. The period covered by each Application for Payment shall be one (1) calendar month, ending on the last day of the month.

§ 12.2.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor, less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

§ 12.2.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests. **CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, SECURITY INTEREST OR ENCUMBRANCES FILED BY THE CONTRACTOR, SUBCONTRACTORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THE CONTRACTOR OR SUBCONTRACTOR FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.**

§ 12.3 Certificates for Payment

§ 12.3.1 In each Application for Payment, Contractor shall certify that there are no known mechanics' or materialmens' liens outstanding at the date of this requisition, that all due and payable bills with respect to the Work have been paid to date or are included in the amount requested in the current application and that except for such bills not paid but so included, there is no known basis for the filling of any mechanics' or materialmens' liens on the Work, and that releases from all subcontractors and materialmen have been obtained in such form as to constitute an effective release of lien under the laws of the State of Texas covering all Work theretofore performed and for which payment has been made by Owner to Contractor.

§ 12.3.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner that the Architect has observed the progress of the Work and determined that, in the Architect's professional opinion, based on the Architect's evaluations of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the

Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect in writing to the Owner. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data unless requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum. Examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's accountants or other representatives of the Owner acting in the sole interest of the Owner.

§ 12.3.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.2.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 12. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described herein, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a separate contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
.7 repeated failure to carry out the Work in accordance with the Contract Documents;
.8 **delay beyond the times set forth elsewhere in the Contract Documents including but not limited to the submission for approval of the schedule of values, cost breakdowns on proposal requests, progress schedule, list of subcontractors and insurance requirements;**
.9 **failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of Work within the Contract Time;**
.10 **evidence of financial inability to perform the Contract fully;**
.11 **failure to submit record documents required by the Contract; or**
.12 **failure** of the Contractor to perform any other obligations of the Contract.

§ 12.3.4 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed in default by reason of withholding payment as provided for in this Agreement.

§ 12.4 Progress Payments

§ 12.4.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments for undisputed amounts in the manner and within the time provided in the Contract Documents, on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents. Payment shall be made by the Owner not later than thirty (30) days after approval of the Contractor's Application for Payment by the Architect. Owner shall provide written notification to Contractor within twenty-one (21) days if Owner disputes the Contractor's Certificate for Payment pursuant to Texas Government Code section 2251.041 *et. seq.*, listing the specific reasons for non-payment. Payments to the Contractor shall not be construed as releasing the Contractor or his Surety from any obligations under the Contract Documents or Construction Documents. Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such

form and supported by such data to substantiate its accuracy as the Owner may require. This schedule shall be used as the basis for reviewing Contractor's Applications for Payment. Applications for Payment shall comply with all requirements of this Contract, including submission of the required certifications, and shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 12.4.2 The period covered by each Application for Payment shall be one (1) calendar month ending on the last day of the month.

§ 12.4.3 Provided that an Application for Payment is received by the Architect not later than the last day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the last day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later that forty-five (45) days after the Architect receives the Application for Payment. Subject to the other provisions in the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take the portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%);

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%);

.3 Subtract the aggregate of previous payments made by the Owner;

.4 Subtract amounts, if any, for which the Owner has withheld or nullified a Certificate of Payment as provided for in this Contract; and

.5 Upon Substantial Completion of the Work, add a sum sufficient to increase the total payments to ninety-five percent (95%) of the full amount of the Contract Sum, less such amounts as the Owner shall determine is necessary for incomplete work and unsettled claims.

§ 12.4.4 Retainage, if any, shall be withheld as set out in Section 12.4.3 above.

§ 12.4.5 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 12.4.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 12.4.7 The Contractor shall, as a condition precedent to any obligation of the Owner under this Agreement, provide to the Owner payment and performance bonds in the full penal amount of the Contract to the extent required by Texas Government Code Chapter 2253.

§ 12.5 Substantial Completion

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the entire Project and all systems are fully complete and fully operable permitting Owner full and complete use of the entire Project, subject only to the correction or completion of minor finish work items the value of which shall in no event exceed one percent (1%) of the Contract Sum.

§ 12.5.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 12.5.3 Upon receipt of the Contractor's list, the Architect, accompanied by the Owner or Owner's representative, at the Owner's option, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work is substantially complete in accordance with Section 12.5.1, Architect shall issue Certificate of Substantial Completion and shall deliver to the Contractor a "Punch List" of all items which must be completed or corrected before the Work is ready for final inspection and acceptance, which shall establish the date of Substantial Completion, establish responsibilities of the Owner and

Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. If Contractor fails to fully and finally complete the Work within the time specified by the Architect for completion of the Punch List, then Contractor's name may be removed from the list of bidders acceptable to the Owner for the construction of future projects. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. It is contemplated that Architect shall make no more than three (3) inspections after the Contractor notifies Architect that Contractor considers the Work substantially complete. If upon completion of the third inspection, the Work has not progressed to the point that the Architect can certify that the Work is fully and finally complete in accordance with the Contract Documents, the cost of all additional inspections by the Architect shall be charged to and borne by the Contractor.

§ 12.5.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 12.6 Final Completion and Final Payment

§ 12.6.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a Certificate of Completion and a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 12 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 12.6.2 The Contractor shall not be entitled to final payment unless and until it submits to the Owner its affidavit that the payrolls, invoices for materials and equipment, and other liabilities connected with the Work for which the Owner, or the Owner's property, might be responsible have been fully paid or otherwise satisfied; releases and waivers of liens from all Subcontractors of the Contractor and of any and all other parties required by the Owner; such other provisions as Owner may request; and consent of Surety to final payment. If any third party fails or refuses to provide a release of claims or waiver of lien as required by Owner, the Contractor shall furnish a bond satisfactory to the Owner to discharge any such lien or indemnify the Owner from liability.

§ 12.6.3 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in the Contract Documents, and to satisfy other requirements, if any, which extend beyond final payment;

.2 Contractor's Final Application for Payment is property submitted and accepted by Owner; and

.3 a final Certificate for Payment has been issued by the Architect.

§ 12.6.4 The Owner shall make final payment of all sums due the Contractor not more than thirty-one (31) days after the issuance of Owner's final Certificate for Payment. Final Certificate for Payment and release of retainage will not be considered unless all testing required by the Contract Documents (including project manual), project specifications and drawings are provided in their final format showing that all findings of noncompliance have been corrected.

§ 12.6.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

§ 12.7 AUDIT

Contractor agrees to maintain adequate books, payrolls and records satisfactory to the Owner in connection with any and all Work performed hereunder. Contractor agrees to retain all such books, payrolls and records (including data

stored in computer) for a period of not less than three (3) years after completion of the Work. At all reasonable times, Owner and its duly authorized representatives shall have access to all personnel of Contractor and all such books, payrolls and records, and shall have the right to audit same.

ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

§ 13.1 SAFETY PRECAUTIONS AND PROGRAMS

§ 13.1.1 Contractor's employees, agents, and subcontractors shall not perform any service for Owner while under the influence of alcohol or any controlled substance. Contractor, its employees, agents, and subcontractors shall not use, possess, distribute, or sell illicit or unprescribed controlled drugs or drug paraphernalia, or misuse legitimate prescription drugs while performing the Work. Contractor, its employees, agents, and subcontractors shall not use, possess, distribute, or sell alcoholic beverages while performing the Work.

§ 13.1.2 Contractor has adopted or will adopt its own policy to assure a drug and alcohol free work place while performing the Work.

§ 13.1.3 Contractor will remove any of its employees from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. Owner has the right to require Contractor to remove employees from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, Contractor's employees may only be considered for return to work after the Contractor certifies as a result of a for-cause test, conducted immediately following removal, that said employee was in compliance with this contract. Contractor will not use an employee to perform the Work who either refuses to take, or tests positive in, any alcohol or drug test.

§ 13.1.4 Contractor will comply with all applicable federal, state, and local drug and alcohol related laws and regulations (e.g., Department of Transportation regulations, Department of Defense Drug-free Work-free Workforce Policy, Drug-Free Workplace Act of 1988). Owner has also banned the presence of all weapons on the Project site, whether the owner thereof has a permit for a concealed weapon or not.

§ 13.2 HAZARDOUS MATERIALS

§ 13.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. If such notice is provided orally, written confirmation of such notice by Contractor shall be provided not later than one (1) business day following such notification. Upon receipt of the Contractor's written notice, the Owner may obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor, and in the event such material or substance is found to be present, to cause it to be rendered harmless. Owner shall not be responsible for materials or substances brought to the site by the Contractor. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up. Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles; or (2) where the Contractor fails to perform the obligations under this section, except to the extent the cost and expense are due to the Owner's fault or negligence.

§ 13.3 CRIMINAL HISTORY RECORDS CHECKS

§ 13.3.1

Prior to the commencement of work, Contractor shall take all necessary steps to comply with Texas Education Code, Section 22.0834 by obtaining, if a Qualified Contractor, as defined, or arranging with Owner to obtain, if not a Qualified Contractor, national criminal history record information ("CHRI") as to Contractor and Subcontractors and all persons associated with them including their employees, agents and representatives who a) have or will have continuing duties related to the contracted services; and b) have or will have direct contact with students (each a "Covered Employee").

§ 13.3.2 If the Contractor or any Subcontractor determines that § 13.3.1 does not apply to an employee, the Contractor or Subcontractor shall make a reasonable effort to ensure that the conditions or precautions that resulted in the determination that § 13.3.1 did not apply to the employee continue to exist throughout the time that the contracted services are provided.

§ 13.3.3 The requirements of § 13.3.1 do not apply if:

.1 the public work does not involve the construction, alteration, or repair of an Instructional Facility as defined by Section 46.001, Texas Education Code (real property, an improvement to real property, or a necessary fixture of an improvement to real property that is used predominantly for teaching the curriculum required by the Texas Education Code);

.2. for public work that involves construction of a new Instructional Facility, the person's duties related to the contracted services will be completed not later than the seventh (7th) day before the first day the facility will be used for instructional purposes; or

.3 for a public work that involves an existing Instructional Facility:

(a) the public work area contains sanitary facilities and is separated from all areas used by students by a secure barrier fence that is not less than six feet in height; and

(b) the Contractor adopts a policy prohibiting employees, including subcontractor entity employees, from interacting with students or entering areas used by students, informs employees of the policy, and enforces the policy at the public work area.

§ 13.3.4 If the Contractor is not a Qualified School Contractor, a person to whom § 13.3.1 applies must submit to a CHRI review by the Owner.

§ 13.3.5 Owner and Contractor agree to destroy any CHRI obtained or indexed by the Federal Bureau of Investigation ("FBI") or Texas Department of Public Safety ("DPS") under this § 13.3.1 after the information is used for its authorized purpose. CHRI may only be released to the individual who is the subject of the information, by court order, or as allowed by law.

§ 13.3. 6 Any Covered Employee that has during the preceding thirty (30) years, (a) been convicted of or placed on deferred adjudication community supervision for an offense for which a defendant is required to register as a sex offender under Chapter 62, Code of Criminal Procedure; or (b) been convicted of a felony offense under Title 5, Texas Penal Code if the victim of the offense was under 18 years of age at the time the offense was committed; (c) been convicted of an equivalent offense to (a) or (b) under federal law or the laws of another state ("Disqualifying Criminal History"); shall be disqualified and prohibited from performing any contract duties or services and neither the Contractor nor its Subcontractor may permit such person to provide services at an Instructional Facility. If a Covered Employee is determined by the Owner's review of the CHRI to have a Disqualifying Criminal History, Contractor will exclude that person from assignment to the Project. To the extent the Owner, not the Contractor obtains the CHRI described in this § 3.4.5, Contractor understands that it will not have access to the results of such criminal history records check, based on statewide regulations beyond the control of the Owner, and agrees to rely solely on the judgment of the Owner as to whether the Covered Employee must be excluded from the Project.

§ 13.3.7 Prior to commencement of its work on the Project the Contractor will provide written certification to the Owner that either: (1) Contractor and its Subcontractors of every tier, do not have any Covered Employees, as defined; (2) Contractor and its Subcontractors of every tier are otherwise exempt from compliance with the requirements contained herein; or (3) Contractor and its Subcontractors of every tier have complied with the statutory and contractual requirements of this Agreement as of that date.

§ 13.3.8 Contractor agrees that if it receives information that a Covered Employee is arrested or convicted for any of the Disqualifying Criminal History offenses, during the performance of the Work, Contractor will immediately remove the Covered Employee from Owner's property or other location where students are regularly present, and notify the Owner of said removal within three (3) days of doing so. Contractor understands that any failure to comply with the requirements of this section may be grounds for termination of this Agreement by Owner, in accordance with Article 14, Termination.

ARTICLE 14 CORRECTION OF WORK

§ 14.1 The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Assignment of Contract

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

§ 15.2 Tests and Inspections

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Architect requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 15.3 Governing Law

The Contract shall be governed by the laws of the State of Texas, without regard to the choice-of-law rules of any jurisdiction. The Contract is deemed performable entirely in the county in which the Project is located. Any litigation to enforce or interpret any terms of the Contract or any other litigation arising out of or as a result of the Contract shall be brought in the State courts of said county.

ARTICLE 16 TERMINATION OF THE CONTRACT

§ 16.1 Termination by the Contractor

If the Work is stopped for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

§ 16.2 Termination by the Owner for Cause

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;
- **.4** fails to proceed continuously and diligently with the construction and completion of the Work; except as permitted under the Contract Documents;
- **.5** fails to furnish the Owner, upon written request, with assurances satisfactory to the Owner, evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;
- **.6** engages in or permits serious or repeated worker misconduct in violation of Article 13;
- **.7** engages in conduct that would constitute a violation of state or federal criminal law, including but not limited to, the laws prohibiting certain gifts to public servants, or engages in conduct that would constitute a violation of the Owner's ethics or conflict of interest policies; or
- **.8** is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

.1 take possession of the site and of all materials thereon owned by the Contractor, and

.2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any further payment shall be limited to amounts actually earned to the date of termination.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 16.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 17 OTHER TERMS AND CONDITIONS

(Insert any other terms or conditions below.)

§ 17.1 Pursuant to Texas Government Code Chapter 2271, as amended, if this contract is valued at $100,000 or more and if the Contractor has at least ten (10) full time employees, then the Contractor, by its execution of this Agreement represents and warrants to the Owner that the Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 17.2 Pursuant to Texas Government Code Chapters 2274 and 809, if this contract is valued at $100,000 or more and if Independent Consultant has at least ten (10) full-time employees, then Independent Consultant represents and warrants to the District that the Independent Consultant does not boycott energy companies and will not boycott energy companies during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 17.3 Pursuant to Texas Government Code Chapter 2274, if this contract is valued at $100,000 or more and if Independent Consultant has at least ten (10) full-time employees, then Independent Consultant represents and warrants to the District that the Independent Consultant does not discriminate against firearm entities or firearm trade associations and will not discriminate against firearm entities or firearm trade associations during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 17.4 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Contract.

§ 17.5 By signing this Agreement, the undersigned certifies as follows: Under Section 231.009 of the Texas Family Code, the Contractor certifies that the individual or business entity named in this Contract is not ineligible to receive the specified payments and acknowledges that this Contract may be terminated and payment withheld in this certification is inaccurate.

§ 17.6 The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Contract and the Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter. Therefore, if the value of this Project is One Million Dollars ($1,000,000.00) or more, the Contractor agrees to : (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the Owner for the duration of the contract; (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the Owner; and (3) on completion of the contract, either: (a) provide at no cost to the Owner all contracting information related to the contract that is in the custody or possession of the entity; or (b) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the

Owner.

§ 17.7 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Agreement.

§ 17.8 Pursuant to Texas Government Code Chapter 2273, Contractor represents and warrants that it not a abortion provider or an affiliate of an abortion provider.

This Agreement entered into as of the day and year first written above.
(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)

CALALLEN INDEPENDENT SCHOOL DISTRICT EXHIBIT ONLY – NOT FOR SIGNATURE	COMPANY FULL LEGAL NAME: _____ EXHIBIT ONLY – NOT FOR SIGNATURE
OWNER *(Signature)*	***CONTRACTOR*** *(Signature)*
Ms. Emily Lorenz, Superintendent of Schools	Name:_____ Title:_____
(Printed name and title)	*(Printed name and title of authorized representative)*

Additions and Deletions Report for
AIA® Document A105® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:30:19 ET on 08/19/2024.

PAGE 1

AGREEMENT made as of the _____ day of _____ in the year Two Thousand Twenty-Four (2024)

...

Calallen Independent School District, a public school district and political subdivision of the State of Texas
4205 Wildcat Drive
Corpus Christi, Texas 78410
Phone: (361) 242-5600

...

EXHIBIT ONLY – NOT TO BE COMPLETED UNTIL AFTER BOARD ACTION

Name: _____
Type of Entity: _____
Address: _____
_____
Phone: _____

...

Calallen ISD 2023 Bond Project – Projects at Wilma Magee Intermediate School and Wood River Elementary School

...

York Engineering, Inc., a corporation of the State of Texas
9708 S. Padre Island Dr. Ste A200
Corpus Christi, Texas 78418
Phone: (316) 245-9400

...

*Architect herein shall mean Engineer.

...

The Owner and Contractor agree as ~~follows.~~follows:

PAGE 2

5 INSURANCE AND BONDS

...

NOTE: Any reference to an AIA™ Document or any AIA Documents included in the Contract Documents shall refer to such document "as modified for this Project". In addition any reference to AIA Documents shall all be considered to have included the Trademark "™" after the AIA reference, whether or not included in the text. The AIA Documents are registered intellectual property of the American Institute of Architects and use and amendment of such forms is permitted under license granted to Walsh Gallegos Trevino Kyle & Robinson P.C. for this Project. No use may be made of this AIA document other than as Contract Documents for this Project.

...

.2 the drawings and specifications prepared by the ~~Architect, dated~~ Architect and attached as Exhibit C ***OR***, dated _____, and enumerated as follows:

...

~~Number~~	~~Title~~	~~Date~~
Number	Title	Date

...

Number	Title	Date

PAGE 3

Specifications:

...

~~Section~~	~~Title~~	~~Pages~~
Section	Title	Pages

...

Section	Title	Pages

...

~~Number~~	~~Date~~	~~Pages~~

Number	Date	Pages

...

Number	Date	Pages

...

Exhibit A, Owner's Prevailing Wage Rate Schedule

...

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

...

Upon Owner's issuance of a Notice to Proceed.

...

[ ] Not later than ( ) calendar days from the date of~~commencement.~~

...

[X] By the following date:

...

~~($)~~

...

~~Portion of the Work~~	~~Value~~
Portion of the Work	Value

...

Portion of the Work	Value

PAGE 4

~~Item~~	~~Price~~
Item	Price

...

Item	Price

...

~~Item~~	~~Units and Limitations~~	~~Price per Unit ($0.00)~~
Item	Units and Limitations	Price per Unit ($0.00)

...

Item	Units and Limitations	Price per Unit ($0.00)

...

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article ~~12, as follows:~~12.

...

§ 4.2 ~~Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.~~Undisputed payments remaining unpaid under the Contract on the 31st day after the date the Owner receives a properly documented Certificate of Payment from the Architect are considered overdue and in accordance with the Texas Prompt Payment Act, Texas Government Code Chapter 2251, shall bear interest from that date until the date that the Owner mails or electronically transmits payment, including accrued interest to that date.

...

Not applicable. ~~%~~

...

ARTICLE 5 INSURANCE AND BONDS

...

§ 5.1 CONTRACTOR'S INSURANCE

PAGE 5

~~The Contractor shall maintain the following types and limits of insurance~~ § 5.1.1 The Contractor and the Contractor's Subcontractors shall purchase and maintain in force, insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the table below, the Agreement, or elsewhere in the Contract Documents. No work will be commenced, and no equipment or materials may be shipped, until all requirements of Article 5 have been satisfied, satisfactory evidence of insurance has been provided, and all required insurance is in full force and effect. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the State of Texas. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work ~~as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:~~or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with copies, certified by the carrier(s), of insurance policies required under this Article 5. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in this Agreement, unless a different duration is stated below:

...

Workmen's Compensation: (Including Waiver of Subrogation Endorsement)	All liability arising out of Contractor's employment of workers and anyone for whom Contractor shall be liable for Worker's Compensation claims. Worker's Compensation is required and no "alternative" form of insurance shall be permitted.
Employer's Liability:	$1,000,000.00
Commercial General Liability:	
Each Occurrence	$1,000,000.00
General Aggregate	$2,000,000.00 (A Designated Construction Project General Aggregate Limit shall be provided)
Personal & Advertising Injury	$1,000,000.00 each person
Products and Completed Operations	$1,000,000.00 (for one (1) year, commencing with issuance of final Certificate for Payment)
Property Damage:	$2,000,000.00 aggregate
Independent Contractors	(Same limits as above)
Contractual Liability	(Same limits as above)
Automobile Liability:	
Bodily Injury/Property Damage	$1,000,000.00 combined single limit
Property Damage	$1,000,000.00 each occurrence
Umbrella/Excess	$1,000,000.00

...

§ ~~5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than ($) each occurrence, ($) general aggregate, and ($) aggregate for products-completed operations hazard.~~5.1.2 The required insurance must be written by a company licensed to do business in Texas at the time the policy is issued. In addition, the company must be rated at least A-VIII by A.M. Best's Key Rating Guide. The Owner's Representative will contact the State Board of Insurance to confirm that the issuing companies are admitted and authorized to issue such policies in the State of Texas.

...

§ ~~5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor,~~ 5.1.3 The General Liability and Automobile so issued in the name of Contractor shall also name the Owner and subcontractors as additional insureds, as their respective interests may appear. The coverage afforded to the additional insured under the policy or policies shall be primary insurance. It is the intent of the parties to this Agreement that the General Liability coverage required herein shall be primary to and shall seek no contribution from all insurance available to Owner, with Owner's insurance being excess, secondary and non-contributing. The Commercial General Liability coverage provided by Contractor shall be endorsed to provide such primary and non-contributing liability. If the additional insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis.

...

~~with policy limits of~~ § 5.1.4 If the insurance is written with stipulated amounts deductible under the terms of the policy, the Contractor shall pay the difference attributable to deductions in any payment made by the insurance

carrier on claims paid by this insurance. If the Owner is damaged by the failure of the Contractor to maintain such insurance and to so notify the Owner then the Contractor shall bear all reasonable costs properly attributable thereto.

PAGE 6

~~not less than ($) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.~~§ **5.1.5** The insurance required by Section 5.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Nothing contained herein shall limit or waive Contractor's legal or contractual responsibilities to Owner or others.

...

§ ~~5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same~~ **5.1.6** Contractor shall have its insurance carrier(s) furnish to Owner with ISO ACORD Form 25 insurance certificates specifying the types and amounts of coverage in effect, the expiration dates of each policy, and a statement that no insurance will be canceled or materially changed while the Work is in progress without thirty (30) calendar day's prior written notice to Owner. Contractor shall permit Owner to examine the insurance policies, or at Owner's option, Contractor shall furnish Owner with copies, certified by the carrier(s), of insurance policies required in Section 5.1.1. If Contractor neglects or refuses to provide any insurance required herein, or if any insurance is canceled, Owner may, but shall not be obligated to, procure such insurance and the provisions of Section 5.1.8 hereof shall apply.

...

~~or greater coverage as those required under Section 5.1.1~~ § **5.1.7** Contractor and its contractors shall not commence the shipment of equipment or materials or commence the Work at the site until all of the insurance coverage required of Contractor and its contractors are in force and the necessary certificates and statements pursuant to Section 5 hereof have been received by Owner and the Architect has issued a written notice to proceed.

...

~~and 5.1.2, and in no event shall~~ § **5.1.8** As an alternative and at Owner's option and expense, Owner may elect to furnish or to arrange for any part or all of the insurance required by Section 5.1 hereof. If Owner so elects, it shall notify, in writing, Contractor and issue a Change Order therefor, but no adjustment to the scheduled completion date or the Contract Sum shall be allowed.

...

§ 5.1.9 Workers' Compensation Insurance Coverage.

...

.1 Definitions:

...

.1.1 **Certificate of coverage ("Certificate")**. A copy of a certificate of insurance, a certificate of authority to self-insure issued by the division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

...

.1.2 **Duration of the Project.** Includes the time from the beginning of the work on the Project until the Contractor's work on the Project has been completed and accepted by the Owner.

...

~~any excess or umbrella liability insurance~~ .1.3 **Persons providing services on the Project ("subcontractor" in Texas Labor Code §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 contracts directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service 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.

...

.2 The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which 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.

...

.3 The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.

...

.4 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 Owner showing that coverage has been extended.

...

~~provide narrower~~ .5 The Contractor shall obtain from each person providing Services on a Project, and provide to the Owner:

...

.5.1 a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

.5.2 no later than ~~the primary policy.~~ seven (7) 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.

...

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

...

~~The excess policy shall not require exhaustion of the underlying limits only through~~ .7 The Contractor shall notify the Owner in writing by certified mail or personal delivery, within ten (10) 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 actual payment by the underlying insurers.~~.8 The Contractor shall post on each Project site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, 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.

...

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

...

~~§ 5.1.4 Workers' Compensation at statutory limits.~~.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which 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;

...

.9.2 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 the Project, for the duration of the Project;

...

.9.3 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;

...

~~§ 5.1.5 Employers' Liability with policy limits not less than ($)~~.9.4 obtain from each other person with whom it contracts, and provide to the Contractor:

...

(a) a certificate of coverage, prior to the other person beginning work on the Project; and

...

(b) a new certificate of coverage showing 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;

...

.9.5 retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter;

...

.9.6 notify the Owner in writing by certified mail or personal delivery, within ten (10) 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

...

~~each accident, ($) each employee,~~ **.9.7** contractually require each person with whom it contracts, to perform as required by Subparagraphs .9.1 - .9.7 with the certificates of coverage to be provided to the person for whom they are providing services.

...

~~and ($) policy limit.~~**.10** By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner 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 Texas Department of Insurance, 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.

...

.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner. [28 TAC §110.110(c)(7)]

...

~~**§ 5.1.6** The Contractor shall provide builder's risk insurance.~~ **§ 5.1.10** The Contractor shall provide an Installation Floater or Builder's Risk Insurance to cover the total value of the entire Project on a replacement cost ~~basis.~~basis, with the Owner named as an Additional Insured.

...

§ ~~5.1.7 Other Insurance Provided~~ 5.2 PERFORMANCE BOND AND PAYMENT BOND

...

§ 5.2.1 If the Contract Sum in Article 3 is in excess of $100,000, the Contractor is required, as a condition precedent to the execution of the Contract, to execute a PERFORMANCE BOND in the form required by TEXAS STATUTES, in the amount equal to ONE HUNDRED PERCENT (100%) of the total combined accepted bid(s).

§ 5.2.2 If the Contract Sum in Article 3 is in excess of $25,000, the Contractor

...

~~*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*~~*is required, as a condition precedent to the execution of the Contract, to execute a PAYMENT BOND in the form required by TEXAS STATUTES, in the amount equal to ONE HUNDRED PERCENT (100%) of the total bid as security for payment of all persons performing labor and furnishing materials in connection with this Contract. (Bonding Company is to furnish such forms). All bonds shall name the Owner as additional obligee.*

...

~~Coverage~~ ~~Limits~~

...

§ ~~5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance~~ 5.2.3 The Bond(s) shall meet requirements of Chapter 2253 of the Texas Governmental Code. All bonds shall be issued by a surety company licensed, listed and authorized to issue bonds in the State of Texas by the Texas Department of Insurance. The surety company may be required by the Owner to have a rating of not less than AB@ in the latest edition of Best's Insurance Reports, Property-Casualty. The surety company shall provide, if requested, information on bonding capacity, other projects under coverage and shall provide proof to establish adequate financial capacity for this project.

...

~~to cover the value of the Owner's property. The Contractor is entitled to receive an increase~~ Should the bond amount be in excess of ten percent (10%) of the surety company's capital and surplus, the surety company issuing the bond shall certify that the surety company has acquired reinsurance, in a form and amount acceptable to the Owner, to reinsure the portion of the risk that exceeds ten percent (10%) of the surety company's capital and surplus with one or more reinsurers who are duly authorized and admitted to do business in Texas and that amount reinsured by an reinsurer does not exceed ten percent (10%) of the reinsurer's capital and surplus.

...

The Sureties shall promptly file a signed copy of the Contract, Performance, and Payment Bonds with the Owner in full compliance with Chapter 2253 of the Texas Governmental Code.

...

~~the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.~~§ 5.2.4 All bonds will be reviewed by the Owner for compliance with the Contract Documents prior to execution of the contract. In the event that the Owner has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's representative for review and decision.

...

§ ~~5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.~~5.2.5 All bonds shall be originals. The Contractor shall

require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the Power-of-Attorney. The name, address, and telephone number of a contact person for the bonding company shall be provided.

...

§ ~~5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.~~**5.2.6** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

...

§ ~~5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other~~ **5.2.7** Bonds shall be signed by an agent resident in the State of Texas and the date of the bond shall be the date of execution of the contract. If at any time during the continuance of the contract, the surety of the Contractor's bonds becomes insufficient, Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) business days after notice to do so. In default thereof, the Contractor may be suspended, and all payment or money due to the Contractor withheld.

...

~~and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.~~**§ 5.2.8** By inclusion of this Subsection in the Contract Documents, the surety which issues the bonds is hereby notified that the Owner and its agents and employees do not represent and will not be responsible for the surety's interests during the course of the Work. To protect its interests, the surety shall have the right to attend pay estimate meetings, review Applications for Payment when requested in writing by them, comment upon and make recommendations regarding payments, and inspect the Work in the presence of the Contractor and the Owner. By providing the bonds for the Work, the surety shall and hereby waives any cause of action against the Owner, its agents and employees, for any loss suffered by the surety by reason of overpayment of any amounts to the Contractor, unless such is a direct result of a fraudulent or grossly negligent act committed by such party.

PAGE 9

§ 6.5 Electronic Notice

...

Owner's representative:

...

(Name, address, email address, and other information)

...

Emily Lorenz, Superintendent of Schools
Calallen Independent School District
4205 Wildcat Drive, Corpus, Christi, Texas 78410-5198
Phone: (361) 242-5600
Email: elorenz@calallen.org

...

Contractor's representative:

...

(Name, address, email address, and other information)

...

EXHIBIT ONLY – TO BE COMPLETED AFTER BOARD ACTION

Representative's Name: _____
Representative's Title: _____
Company Full Legal Name: _____
Address: _____
Company Phone: _____
Cell Phone: _____
Email: _____

...

§ 7.0.1 The Owner is the Board of Trustees of the Calallen Independent School District and is referred to throughout the Contract Documents as if singular in number. The Owner may designate in writing one or more persons to represent the Owner; however, such representatives shall have the authority to bind the Owner only to the extent expressly authorized by the Owner and shall have no implied authority. Neither the Architect nor the Contractor may rely upon the direction of any employee of Owner who has not been so designated as Owner's representative. Owner shall not be financially responsible for actions taken by the Architect or Contractor in reliance upon direction from unauthorized persons.

PAGE 10

§ 7.0.2 The Contractor acknowledges that no lien rights exist with respect to public property. Under the laws of the State of Texas, neither the Contractor nor any sub-contractor, mechanic, materialman or laborer, is entitled to acquire or attempt to acquire or contract for any lien upon the improvements covered by this Contract or the land upon which they are situated.

...

If the Contractor fails to correct Work ~~which is~~ that is defective or not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

...

If the Contractor ~~defaults or neglects to~~ is in default on any of its material obligations hereunder, neglects to timely carry out the Work in accordance with the Contract ~~Documents and~~ Documents, or fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or ~~neglect~~ non-conforming or defective Work with diligence and promptness, the Owner may, without prejudice to other remedies, correct such ~~deficiencies.~~ defaults or such non-conforming or defective Work. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

...

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to Architect, the Contractor shall assume appropriate responsibility for any such performance and shall bear an appropriate amount of the attributable costs for correction. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents, however any apparent design errors or omissions noted by the Contractor during this review shall be reported promptly to the Architect.

...

The Contractor's initial schedule shall be provided with the proposal in response to the Owner's procurement for this Project. As part of the response, Contractor shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The Contractor, promptly after being awarded the Contract, ~~shall~~ will also prepare and submit for the Owner's and Architect's information a Contractor's final coordinated construction schedule for the Work.

PAGE 11

§ 8.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the ~~Work.~~Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents gives specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and except as stated below shall be fully and solely responsible for the jobsite safety of such means, methods, techniques sequences or procedures. If the Contractor determines that such means, methods, techniques, or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed by the Owner, in writing, to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by Contractor, the Owner shall be solely responsible for any loss or damage arising solely from the Owner-required means, methods, techniques, sequences or procedures.

...

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for qualified, careful, and efficient workers and labor, eligible to work in accordance with state and federal law. Contractor shall appropriately classify all workers in accordance with the Fair Labor Standards Act, its implementing regulations, and Texas Labor Code Section 214.008. In addition, unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

...

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Contractor shall be responsible for the actions of Contractor's forces, Subcontractor's forces and all tiers of Sub-subcontractor's forces. The Contractor recognizes that the Project Site is a public school campus, and will prohibit the possession or use of alcohol, controlled stances, tobacco, and any prohibited weapons on the Project Site and shall require adequate dress of the Contractor's forces consistent with the nature of the Work being performed, including wearing shirts at all times. Sexual harassment of employees of the Contractor or employees or students of the Owner by employees of the Contractor is strictly forbidden. Any

employee of the Contractor who is found to have engaged in such conduct shall be subject to appropriate disciplinary action by the Contractor, including removal from the job site.

...

§ 8.4.3 PREVAILING WAGES

...

The Project is subject to the Texas Government Code, Chapter 2258, Prevailing Wage Rates. This statute requires the Contractor and any Subcontractor to pay not less than the prevailing rates of per diem wages in the locality at the time of construction to all laborers, workmen, and mechanics employed by them in the execution of the contract.

...

§ 8.4.3.1 In accordance therewith, the Owner has established a scale of prevailing wages which is incorporated in the Contract as Exhibit B, and not less than this established scale must be paid on the Project. Any workers not included in the schedule shall be properly classified and paid not less than the rate of wages prevailing in the locality of the Work at the time of construction.

...

§ 8.4.3.2 A Contractor or Subcontractor who violates the provisions of Section 8.4.3 shall pay to Owner the sum of Sixty Dollars and No/100 ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rate stipulated in the scale of prevailing wages applicable to this Project, as required by Texas Government Code Section 2258.023(b).

PAGE 12

§ 8.4.3.3 Substitutions will not be accepted unless approved through the procedures set forth in the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum, regardless of acceptance or rejection, amounts paid to the Architect to evaluate the Contractors proposed substitutions. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect to make agreed upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

...

§ 8.4.3.4 The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project.

...

§ 8.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

...

§ 8.5.2 The Contractor agrees to assign to the Owner at the time of final completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties. As a condition precedent to final payment, the Contractor shall submit to Owner a complete set of warranties from subcontractors, manufacturers, or suppliers as appropriate, and executed by Contractor as required, with a warranty commencement date as required by the Contract Documents.

...

§ 8.5.3 Contractor's express warranty herein shall be in addition to, and not in lieu of, any other remedies Owner may have under this Agreement, at law, or in equity for defective Work.

...

§ 8.5.4 The warranty provided in Section 8. shall be in addition to and not in limitation of any other warranty or remedy required by law or by the Contract Documents, and such warranty shall be interpreted to require Contractor to replace defective materials and equipment and re-execute defective Work which is disclosed to the Contractor by the Owner within a period of one (1) year after Substantial Completion of the entire Work or if latent defect, within one (1) year after discovery thereof by Owner.

...

§ 8.5.5 The Contractor shall issue in writing to the Owner as a condition precedent to final payment a "General Warranty" reflecting the terms and conditions of Sections 8.5.1 and 8.5.2 for all Work under the Contract Documents. This General Warranty shall be assignable. Submittal of all warranties and guarantees are required as a prerequisite to the final payment.

PAGE 13

§ 8.5.6 Except when a longer warranty time is specifically called for in the Specification Sections, herein, or is otherwise provided by law, the General Warranty shall be for twelve (12) months and shall be in form and content otherwise satisfactory to the Owner. Contractor acknowledges that the Project may involve construction work on more than one (1) building for the Owner. Each building, or approved phase of each building, shall have its own, separate, and independent date of Substantial Completion or Final Completion. Contractor shall maintain a complete and accurate schedule of the dates of Substantial Completion, dates upon which the one (1) year warranty on each phase or building which is substantially complete will expire, and dates of Final Completion. Contractor agrees to provide notice of the warranty expiration date to Owner at least one (1) month prior to the expiration of the one (1) year warranty period on each building or each phase of the building which has been substantially completed. Prior to termination of the one (1) year warranty period, Contractor shall accompany the Owner on re-inspection of the building and be responsible for correcting any reasonable additional deficiencies not caused by the Owner or by the use of the building which are observed or reported during the re-inspection. For extended warranties required by various sections, i.e. roofing, compressors, mechanical equipment, Owner will notify the Contractor of deficiencies and Contractor shall start remedying these defects within three (3) days of initial notification from Owner. Contractor shall prosecute the work without interruption until accepted by the Owner, even though such prosecution should extend beyond the limit of the warranty period. If Contractor fails to provide notice of the expiration of the one (1) year warranty period at least one (1) month prior to the expiration date, Contractor's warranty obligations described in this Section shall continue until such inspection is conducted and any deficiencies found in the inspection corrected.

...

§ 8.5.7 Warranties shall become effective on a date established by the Owner in accordance with the Contract Documents. This date shall be the Date of Substantial Completion of the entire Work, unless otherwise provided in any Certificate of Partial Substantial Completion approved by the parties, except for work to be completed or corrected after the date of Substantial Completion and prior to final payment. Warranties for work to be completed or corrected after the date of Substantial Completion and prior to final payment shall become effective on the later of the date the work is completed or corrected and accepted by the Owner or the date of final payment.

...

The Contractor shall ~~pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.~~not include in the Contract Price or any Modification any amount for sales, use, or similar taxes for which (1) a Texas independent school district is exempt, and (2) the Owner has provided the Contractor with a tax exemption certificate or other documentation necessary to establish the Owner's exemption from such taxes. CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMANDS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS. Contractor shall cooperate with Owner, take such action and execute such documents as may be necessary so that Owner may utilize its exemption from the Texas Sales and Use Tax for materials used in such Project. The tax-exempt identification number for the Calallen Independent School District is 1-74-6000464-1.

PAGE 14

~~To~~ **§ 8.12.1 TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY, DEFEND (EXCEPT AS LIMITED BELOW) AND HOLD HARMLESS THE OWNER, THE OWNER'S TRUSTEES, OFFICERS, AGENTS AND EMPLOYEES (HEREINAFTER IN THIS SECTION 8.12 "OWNER"), FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, (INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES, AS PERMITTED BY STATUTE), ARISING OUT OF OR RESULTING FROM PERFORMANCE OF THE WORK, PROVIDED THAT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF), INCLUDING THE LOSS OF USE RESULTING THEREFROM, CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEMTHE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. SUCH OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR REDUCE OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY THAT WOULD OTHERWISE EXIST AS TO A PARTY OR PERSON DESCRIBED IN THIS SECTION 8.12.**

...

§ 8.12.2 IN CLAIMS AGAINST ANY PERSON OR ENTITY INDEMNIFIED UNDER THIS SECTION BY AN EMPLOYEE OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER SECTION 8.12.1 SHALL NOT BE LIMITED BY A

LIMITATION ON AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR SUBCONTRACTOR UNDER INSURANCE POLICIES, WORKERS' COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.

...

§ 8.12.3 THE DUTY TO DEFEND SET OUT ABOVE SHALL NOT APPLY IN THE EVENT THAT THE CLAIM IS BASED, IN WHOLE OR IN PART, ON THE NEGLIGENCE OF, FAULT OF, OR BREACH OF CONTRACT BY THE OWNER. NOTWITHSTANDING THE FOREGOING, THE CONTRACTOR AGREES TO REIMBURSE THE OWNER'S REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE CONTRACTOR'S LIABILITY.

...

§ 8.12.4 CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL HOLD OWNER FREE AND HARMLESS FROM LIABILITY RESULTING FROM LOSS OF OR DAMAGE TO CONTRACTOR'S OR ITS SUBCONTRACTORS' CONSTRUCTION TOOLS AND EQUIPMENT AND RENTED ITEMS WHICH ARE USED OR INTENDED FOR USE IN PERFORMING THE WORK, REGARDLESS OF WHETHER SUCH LOSS OR DAMAGE IS CAUSED IN WHOLE OR IN PART BY THE WILLFUL, INTENTIONAL OR NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE IS CAUSED IN PART BY THE OWNER. IF THE OWNER'S NEGLIGENCE IS A CONCURRENT CAUSE OF THE INJURY, DEATH, OR DAMAGE, CONTRACTOR'S OBLIGATION TO INDEMNIFY IS LIMITED TO THE AMOUNT NECESSARY TO CAUSE THE RELATIVE LIABILITY OF OWNER AND CONTRACTOR TO REFLECT THE COMPARATIVE NEGLIGENCE FINDINGS OF THE TRIER OF FACT (JUDGE OR JURY) OR AS AGREED IN A SETTLEMENT AGREEMENT TO WHICH OWNER AND CONTRACTOR ARE BOTH PARTIES. THIS PROVISION SHALL APPLY, WITHOUT LIMITATION, TO LOSS OR DAMAGE OCCURRING AT THE WORK SITE OR WHILE SUCH ITEMS ARE IN TRANSIT TO OR FROM THE WORK SITE AND IS IN ADDITION TO CONTRACTOR'S OBLIGATIONS UNDER SECTION 8.12.1.

PAGE 15

~~the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.~~ § 8.12.4 Indemnification hereunder shall include, without limiting the generality of the foregoing, liability which could arise to the Owner, its agents, consultants, and representatives pursuant to State statutes for the safety of workmen and in addition, all Federal statutes and rules existing thereunder for protection, occupational safety and health to workmen. It being agreed that the primary obligation of the Contractor is to comply with said statutes in performance of the Work by Contractor and that the obligations of the Owner, its agents, consultants, and representatives under said statutes are secondary to that of the Contractor.

...

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, in accordance with the Contract Documents, the Architect will review and certify the amounts due the Contractor.

...

§ 9.5 The Architect or the Owner has authority to reject Work that does not conform to the Contract Documents.

PAGE 16

§ 12.2.1 ~~At least ten days before the date established for each progress payment,~~ Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price as applicable, the Contractor shall submit to the ~~Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as~~ Architect, before the first Application for Payment, or, in the case of a Guaranteed Maximum Price, concurrent with the Guaranteed Maximum Price Proposal, a schedule of values, allocating the entire Contract Sum to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect or Owner, shall be used in reviewing the Contractor's Applications for Payment. The period covered by each Application for Payment shall be one (1) calendar month, ending on the last day of the month.

...

~~evidence of payments made to, and waivers of liens from, subcontractors and suppliers.~~ § 12.2.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor, less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

...

§ 12.2.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

...

§ ~~12.2.2~~ 12.2.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for ~~Payment,~~ Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, ~~information,~~ information and belief, be free and clear of liens, claims, security ~~interests,~~ interests or other encumbrances adverse to the Owner's interests. **CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, SECURITY INTEREST OR ENCUMBRANCES FILED BY THE CONTRACTOR, SUBCONTRACTORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THE CONTRACTOR OR SUBCONTRACTOR FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.**

...

~~The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner~~ § 12.3.1 In each Application for Payment, Contractor shall certify that there are no known mechanics' or materialmens' liens outstanding at the date of this requisition, that all due and payable bills with respect to the Work have been paid to date or are included in the amount requested in the current application and that except for such bills not paid but so included, there is no known basis for the filing of any mechanics' or materialmens' liens on the Work, and that releases from all subcontractors and materialmen have been obtained in such form as to

constitute an effective release of lien under the laws of the State of Texas covering all Work theretofore performed and for which payment has been made by Owner to Contractor.

PAGE 17

~~a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons~~ § 12.3.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner that the Architect has observed the progress of the Work and determined that, in the Architect's professional opinion, based on the Architect's evaluations of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect in writing to the Owner. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data unless requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum. Examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's accountants or other representatives of the Owner acting in the sole interest of the Owner.

...

~~for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is~~ § 12.3.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.2.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 12. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described herein, because of

...

~~not made within~~ .1 defective Work not remedied;

...

~~such seven-day period,~~ .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

...

~~the Contractor may, upon seven additional days' written notice~~ .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

...

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

...

.5 damage to the Owner or a separate contractor;

...

~~and Architect, stop~~ .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

...

~~the Work until payment~~ .7 repeated failure to carry out the Work in accordance with the Contract Documents;

...

.8 delay beyond the times set forth elsewhere in the Contract Documents including but not limited to the submission for approval of the schedule of values, cost breakdowns on proposal requests, progress schedule, list of subcontractors and insurance requirements;

...

~~of the amount owing has been received. The Contract Time and~~ **.9 failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of Work within the Contract Time;**

...

~~the Contract Sum~~ **.10 evidence of financial inability to perform the Contract fully;**

...

.11 failure to submit record documents required by the Contract; or

...

.12 failure of the Contractor to perform any other obligations of the Contract.

...

§ 12.3.4 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall ~~be equitably adjusted due to the delay.~~not be deemed in default by reason of withholding payment as provided for in this Agreement.

PAGE 18

§ 12.4.1 ~~After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.~~ Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments for undisputed amounts in the manner and within the time provided in the Contract Documents, on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents. Payment

shall be made by the Owner not later than thirty (30) days after approval of the Contractor's Application for Payment by the Architect. Owner shall provide written notification to Contractor within twenty-one (21) days if Owner disputes the Contractor's Certificate for Payment pursuant to Texas Government Code section 2251.041 *et. seq.*, listing the specific reasons for non-payment. Payments to the Contractor shall not be construed as releasing the Contractor or his Surety from any obligations under the Contract Documents or Construction Documents. Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule shall be used as the basis for reviewing Contractor's Applications for Payment. Applications for Payment shall comply with all requirements of this Contract, including submission of the required certifications, and shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

...

§ 12.4.2 The period covered by each Application for Payment shall be one (1) calendar month ending on the last day of the month.

...

§ 12.4.3 Provided that an Application for Payment is received by the Architect not later than the last day of a month, the Owner shall make payment of the certified amount to the Contractor ~~shall promptly pay~~ not later than the last day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later that forty-five (45) days after the Architect receives the Application for Payment. Subject to the other provisions in the Contract Documents, the amount of each progress payment shall be computed as follows:

...

~~each subcontractor~~ .1 Take the portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%);

...

~~and supplier, upon receipt~~ .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%);

...

~~of payment from~~ .3 Subtract the aggregate of previous payments made by the Owner;

...

~~the Owner, an amount determined in accordance with~~ .4 Subtract amounts, if any, for which the Owner has withheld or nullified a Certificate of Payment as provided for in this Contract; and

...

~~the terms of the applicable subcontracts and purchase orders.~~.5 Upon Substantial Completion of the Work, add a sum sufficient to increase the total payments to ninety-five percent (95%) of the full

amount of the Contract Sum, less such amounts as the Owner shall determine is necessary for incomplete work and unsettled claims.

...

§ 12.4.4 Retainage, if any, shall be withheld as set out in Section 12.4.3 above.

...

~~Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.~~§ 12.4.5 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

...

§ ~~12.4.4~~ 12.4.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the ~~requirements~~ Contract Documents.

...

~~of the Contract Documents.~~**§ 12.4.7 The Contractor shall, as a condition precedent to any obligation of the Owner under this Agreement, provide to the Owner payment and performance bonds in the full penal amount of the Contract to the extent required by Texas Government Code Chapter 2253.**

...

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the ~~Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.~~entire Project and all systems are fully complete and fully operable permitting Owner full and complete use of the entire Project, subject only to the correction or completion of minor finish work items the value of which shall in no event exceed one percent (1%) of the Contract Sum.

...

§ 12.5.2 When the Contractor ~~believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect~~ considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

PAGE 19

§ 12.5.3 Upon receipt of the Contractor's list, the Architect, accompanied by the Owner or Owner's representative, at the Owner's option, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work is substantially ~~complete, the Architect shall prepare a Certificate of Substantial Completion that~~ complete in accordance with Section 12.5.1, Architect shall issue Certificate of Substantial Completion and shall deliver to the Contractor a "Punch List" of all items which must be completed or corrected before the Work is ready for final inspection and acceptance, which shall establish the date of Substantial Completion, establish ~~the responsibilities of the Owner and Contractor,~~ responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. If Contractor fails to fully and finally complete the Work within the time specified by the Architect for completion of the Punch List, then Contractor's name may be removed from the list of bidders acceptable to the Owner for the construction of future projects. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of

the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. It is contemplated that Architect shall make no more than three (3) inspections after the Contractor notifies Architect that Contractor considers the Work substantially complete. If upon completion of the third inspection, the Work has not progressed to the point that the Architect can certify that the Work is fully and finally complete in accordance with the Contract Documents, the cost of all additional inspections by the Architect shall be charged to and borne by the Contractor.

...

§ 12.5.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

...

§ 12.6.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will ~~inspect the Work. When~~ promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue ~~a final Certificate for Payment.~~a Certificate of Completion and a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 12 as precedent to the Contractor's being entitled to final payment have been fulfilled.

...

§ 12.6.2 ~~Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.~~The Contractor shall not be entitled to final payment unless and until it submits to the Owner its affidavit that the payrolls, invoices for materials and equipment, and other liabilities connected with the Work for which the Owner, or the Owner's property, might be responsible have been fully paid or otherwise satisfied; releases and waivers of liens from all Subcontractors of the Contractor and of any and all other parties required by the Owner; such other provisions as Owner may request; and consent of Surety to final payment. If any third party fails or refuses to provide a release of claims or waiver of lien as required by Owner, the Contractor shall furnish a bond satisfactory to the Owner to discharge any such lien or indemnify the Owner from liability.

...

§ 12.6.3 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

...

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in the Contract Documents, and to satisfy other requirements, if any, which extend beyond final payment;

...

.2 Contractor's Final Application for Payment is property submitted and accepted by Owner; and

...

.3 a final Certificate for Payment has been issued by the Architect.

...

§ 12.6.4 The Owner shall make final payment of all sums due the Contractor not more than thirty-one (31) days after the issuance of Owner's final Certificate for Payment. Final Certificate for Payment and release of retainage will not be considered unless all testing required by the Contract Documents (including project manual), project specifications and drawings are provided in their final format showing that all findings of noncompliance have been corrected.

...

§ 12.6.5 Acceptance of final payment by the Contractor, a ~~subcontractor or~~ Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

...

§ 12.7 AUDIT

PAGE 20

Contractor agrees to maintain adequate books, payrolls and records satisfactory to the Owner in connection with any and all Work performed hereunder. Contractor agrees to retain all such books, payrolls and records (including data stored in computer) for a period of not less than three (3) years after completion of the Work. At all reasonable times, Owner and its duly authorized representatives shall have access to all personnel of Contractor and all such books, payrolls and records, and shall have the right to audit same.

...

~~The~ § 13.1 SAFETY PRECAUTIONS AND PROGRAMS

...

§ 13.1.1 Contractor's employees, agents, and subcontractors shall not perform any service for Owner while under the influence of alcohol or any controlled substance. Contractor, its employees, agents, and subcontractors shall not use, possess, distribute, or sell illicit or unprescribed controlled drugs or drug paraphernalia, or misuse legitimate prescription drugs while performing the Work. Contractor, its employees, agents, and subcontractors shall not use, possess, distribute, or sell alcoholic beverages while performing the Work.

...

§ 13.1.2 Contractor has adopted or will adopt its own policy to assure a drug and alcohol free work place while performing the Work.

...

~~Contractor shall be responsible for initiating, maintaining~ § 13.1.3 Contractor will remove any of its employees from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such employee, and at any time an incident occurs where drug or alcohol use could have been a contributing factor.

Owner has the right to require Contractor to remove employees from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, Contractor's employees may only be considered for return to work after the Contractor certifies as a result of a for-cause test, conducted immediately following removal, that said employee was in compliance with this contract. Contractor will not use an employee to perform the Work who either refuses to take, or tests positive in, any alcohol or drug test.

...

~~and supervising all safety precautions and programs, including all those required by law in connection~~
§ 13.1.4 Contractor will comply with all applicable federal, state, and local drug and alcohol related laws and regulations (e.g., Department of Transportation regulations, Department of Defense Drug-free Work-free Workforce Policy, Drug-Free Workplace Act of 1988). Owner has also banned the presence of all weapons on the Project site, whether the owner thereof has a permit for a concealed weapon or not.

...

§ 13.2 HAZARDOUS MATERIALS

...

~~with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss~~ **§ 13.2.1** The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. If such notice is provided orally, written confirmation of such notice by Contractor shall be provided not later than one (1) business day following such notification. Upon receipt of the Contractor's written notice, the Owner may obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor, and in the event such material or substance is found to be present, to cause it to be rendered harmless. Owner shall not be responsible for materials or substances brought to the site by the Contractor. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up. Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles; or (2) where the Contractor fails to perform the obligations under this section, except to the extent the cost and expense are due to the Owner's fault or negligence.

...

§ 13.3 CRIMINAL HISTORY RECORDS CHECKS

...

§ 13.3.1

...

Prior to the commencement of work, Contractor shall take all necessary steps to comply with Texas Education Code, Section 22.0834 by obtaining, if a Qualified Contractor, as defined, or arranging with Owner to obtain, if not a

Qualified Contractor, national criminal history record information ("CHRI") as to Contractor and Subcontractors and all persons associated with them including their employees, agents and representatives who a) have or will have continuing duties related to the contracted services; and b) have or will have direct contact with students (each a "Covered Employee").

PAGE 21

§ 13.3.2 If the Contractor or any Subcontractor determines that § 13.3.1 does not apply to an employee, the Contractor or Subcontractor shall make a reasonable effort to ensure that the conditions or precautions that resulted in the determination that § 13.3.1 did not apply to the employee continue to exist throughout the time that the contracted services are provided.

...

§ 13.3.3 The requirements of § 13.3.1 do not apply if:

...

.1 the public work does not involve the construction, alteration, or repair of an Instructional Facility as defined by Section 46.001, Texas Education Code (real property, an improvement to real property, or a necessary fixture of an improvement to real property that is used predominantly for teaching the curriculum required by the Texas Education Code);

...

.2. for public work that involves construction of a new Instructional Facility, the person's duties related to the contracted services will be completed not later than the seventh (7th) day before the first day the facility will be used for instructional purposes; or

...

.3 for a public work that involves an existing Instructional Facility:

...

(a) the public work area contains sanitary facilities and is separated from all areas used by students by a secure barrier fence that is not less than six feet in height; and

...

(b) the Contractor adopts a policy prohibiting employees, including subcontractor entity employees, from interacting with students or entering areas used by students, informs employees of the policy, and enforces the policy at the public work area.

...

§ 13.3.4 If the Contractor is not a Qualified School Contractor, a person to whom § 13.3.1 applies must submit to a CHRI review by the Owner.

...

§ 13.3.5 Owner and Contractor agree to destroy any CHRI obtained or indexed by the Federal Bureau of Investigation ("FBI") or Texas Department of Public Safety ("DPS") under this § 13.3.1 after the information is

used for its authorized purpose. CHRI may only be released to the individual who is the subject of the information, by court order, or as allowed by law.

...

§ 13.3. 6 Any Covered Employee that has during the preceding thirty (30) years, (a) been convicted of or placed on deferred adjudication community supervision for an offense for which a defendant is required to register as a sex offender under Chapter 62, Code of Criminal Procedure; or (b) been convicted of a felony offense under Title 5, Texas Penal Code if the victim of the offense was under 18 years of age at the time the offense was committed; (c) been convicted of an equivalent offense to (a) or (b) under federal law or the laws of another state ("Disqualifying Criminal History"); shall be disqualified and prohibited from performing any contract duties or services and neither the Contractor nor its Subcontractor may permit such person to provide services at an Instructional Facility. If a Covered Employee is determined by the Owner's review of the CHRI to have a Disqualifying Criminal History, Contractor will exclude that person from assignment to the Project. To the extent the Owner, not the Contractor obtains the CHRI described in this § 3.4.5, Contractor understands that it will not have access to the results of such criminal history records check, based on statewide regulations beyond the control of the Owner, and agrees to rely solely on the judgment of the Owner as to whether the Covered Employee must be excluded from the Project.

...

~~to property caused in whole or in part by the Contractor,~~ § 13.3.7 Prior to commencement of its work on the Project the Contractor will provide written certification to the Owner that either: (1) Contractor and its Subcontractors of every tier, do not have any Covered Employees, as defined; (2) Contractor and its Subcontractors of every tier are otherwise exempt from compliance with the requirements contained herein; or (3) Contractor and its Subcontractors of every tier have complied with the statutory and contractual requirements of this Agreement as of that date.

...

~~or by anyone for whose acts the Contractor may be liable.~~§ 13.3.8 Contractor agrees that if it receives information that a Covered Employee is arrested or convicted for any of the Disqualifying Criminal History offenses, during the performance of the Work, Contractor will immediately remove the Covered Employee from Owner's property or other location where students are regularly present, and notify the Owner of said removal within three (3) days of doing so. Contractor understands that any failure to comply with the requirements of this section may be grounds for termination of this Agreement by Owner, in accordance with Article 14, Termination.

PAGE 22

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

...

The Contract shall be governed by the ~~law of the place where the Project is located, excluding that jurisdiction's choice of law rules.~~laws of the State of Texas, without regard to the choice-of-law rules of any jurisdiction. The Contract is deemed performable entirely in the county in which the Project is located. Any litigation to enforce or interpret any terms of the Contract or any other litigation arising out of or as a result of the Contract shall be brought in the State courts of said county.

...

If the Work is stopped ~~under Section 12.3~~ for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover

from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

...

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

...

.4 fails to proceed continuously and diligently with the construction and completion of the Work; except as permitted under the Contract Documents;

...

.5 fails to furnish the Owner, upon written request, with assurances satisfactory to the Owner, evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;

...

.6 engages in or permits serious or repeated worker misconduct in violation of Article 13;

...

~~.4~~ .7 engages in conduct that would constitute a violation of state or federal criminal law, including but not limited to, the laws prohibiting certain gifts to public servants, or engages in conduct that would constitute a violation of the Owner's ethics or conflict of interest policies; or

...

.8 is otherwise guilty of substantial breach of a provision of the Contract Documents.

PAGE 23

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any further payment shall be limited to amounts actually earned to the date of termination.

...

§ 17.1 Pursuant to Texas Government Code Chapter 2271, as amended, if this contract is valued at $100,000 or more and if the Contractor has at least ten (10) full time employees, then the Contractor, by its execution of this Agreement represents and warrants to the Owner that the Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement. This section does not apply to a sole proprietorship.

...

§ 17.2 Pursuant to Texas Government Code Chapters 2274 and 809, if this contract is valued at $100,000 or more and if Independent Consultant has at least ten (10) full-time employees, then Independent Consultant represents and warrants to the District that the Independent Consultant does not boycott energy companies and will not boycott energy companies during the term of this Agreement. This section does not apply to a sole proprietorship.

...

§ 17.3 Pursuant to Texas Government Code Chapter 2274, if this contract is valued at $100,000 or more and if Independent Consultant has at least ten (10) full-time employees, then Independent Consultant represents and warrants to the District that the Independent Consultant does not discriminate against firearm entities or firearm trade associations and will not discriminate against firearm entities or firearm trade associations during the term of this Agreement. This section does not apply to a sole proprietorship.

§ 17.4 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Contract.

§ 17.5 By signing this Agreement, the undersigned certifies as follows: Under Section 231.009 of the Texas Family Code, the Contractor certifies that the individual or business entity named in this Contract is not ineligible to receive the specified payments and acknowledges that this Contract may be terminated and payment withheld in this certification is inaccurate.

PAGE 24

§ 17.6 The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Contract and the Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter. Therefore, if the value of this Project is One Million Dollars ($1,000,000.00) or more, the Contractor agrees to : (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the Owner for the duration of the contract; (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the Owner; and (3) on completion of the contract, either: (a) provide at no cost to the Owner all contracting information related to the contract that is in the custody or possession of the entity; or (b) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the Owner.

§ 17.7 Contractor verifies and affirms that it is not a foreign terrorist organization as identified on the list prepared and maintained by the Texas Comptroller of Public Accounts. If Contractor has misrepresented its inclusion on the Comptroller's list such omission or misrepresentation will void this Agreement.

§ 17.8 Pursuant to Texas Government Code Chapter 2273, Contractor represents and warrants that it not a abortion provider or an affiliate of an abortion provider.

...

CALALLEN INDEPENDENT SCHOOL DISTRICT	COMPANY FULL LEGAL NAME:
EXHIBIT ONLY – NOT FOR SIGNATURE	EXHIBIT ONLY – NOT FOR SIGNATURE
***OWNER** (Signature)*	***CONTRACTOR** (Signature)*
Ms. Emily Lorenz, Superintendent of Schools	Name: _____ Title: _____
(Printed name and title)	*(Printed name and title of authorized representative)*

~~***OWNER** (Signature)*~~

~~*(Printed name and title)*~~

~~***CONTRACTOR** (Signature)*~~

~~*(Printed name and title)*~~
~~LICENSE NO.:~~
~~JURISDICTION:~~

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Kelley L. Kalchthaler, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 14:30:19 ET on 08/19/2024 under Order No. 3104241723 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A105™ - 2017, Standard Short Form of Agreement Between Owner and Contractor, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)