San Angelo Independent School District

26-007
Athletic Fields Projects, 2025 Bond

The San Angelo Independent School District is accepting sealed proposals **for various Athletic Facility construction projects throughout the District. This will include New Turf Fields, Turf Replacement, Lighting, New Tennis Courts, and Track Resurfacing. Full specs are attached; all vendors are encouraged to attend the pre-bid meeting on Wednesday March 11th at 9 am. Pre-Bid meeting will begin at San Angelo Stadium, at the softball field off Johnson. Immediately followed by Lone Star Middle School, Central High School, Old Bobcat Stadium, Lincoln Middle School, and finish at Lake View High School. All addresses are included in the bid form.**

Proposals will be received in the Purchasing Department, 1621 University, San Angelo, TX 76904 until **3PM, Monday, March 23, 2026.** Proposal envelopes shall be plainly marked on the lower left-hand corner with **your company name** and the following information:

Sealed RFP #26-007 **For: Athletic Fields Projects, 2025 Bond**
Your Company Name: **Do Not Open Until: 03/23/26 – 3PM**

The bid packet may be found at http://www.saisd.org/bids OR may be obtained from the SAISD Purchasing Department, 1621 University, San Angelo, Texas, 325.947.3759.

Any deviation from our General Terms and Conditions for Bidding and the Special Terms and Conditions must be noted on the Deviation/Compliance Signature form provided.

Proposals will be publicly opened immediately following the specified deadline. Any proposal received later than the specified time, whether delivered in person or mailed, will be disqualified. **FAXED & EMAILED PROPOSALS WILL NOT BE ACCEPTED.**

After evaluation of all proposals is completed, the Purchasing Department will present a recommendation to the SAISD Board of Trustees at a scheduled meeting. After approval by the Board of Trustees, the bid tab will be posted on the SAISD website at http://www.saisd.org/bids.

Disclosure Statement:
HB 914 requires vendors to submit a conflict-of-interest questionnaire for gifts given to public officers. HB 914 and this questionnaire may be found on the San Angelo ISD website at www.saisd.org/ HB914. Each vendor desiring to do business with San Angelo ISD is required to familiarize themselves with this law and comply with all requirements. Failure to follow these requirements may result in being removed from the approved vendor list for San Angelo ISD.

The San Angelo Independent School District reserves the right to reject any or all proposals and to accept any proposal deemed most advantageous to the District.

If additional information should be required, contact the undersigned at 325.947.3759.

Respectfully,
Jason Henry
Director of Purchasing
Jason.Henry@saisd.org

Purchasing Department
1621 UNIVERSITY
SAN ANGELO, TX 76904
325.947.3759
FAX: 325.947.3837

San Angelo Independent School District

26-007
Athletic Fields Projects, 2025 Bond

TABLE OF CONTENTS

- Special Terms and Conditions (Spec, Plans, Geo) 306 pages
- SAISD Request for Proposal Form **(must return)** 1 page
- BID FORM **(must return)** 2 pages
- SAISD Standard Forms 25 pages
    1. General Conditions for Bidding
    2. Standard Terms and Conditions
    3. Non-Collusion Statement Form **(must return)**
    4. Felony Conviction Notification Form **(must return)**
    5. Bidders Certification Form **(must return)**
    6. Debarment and Suspension Certification Form **(must return)**
    7. Deviation/Compliance Form (**must return**)
    8. No Bid Notification Form (**return if applicable**)
    9. Certification Packet-6 pages (**must return**)
    10. Forms Checklist
    11. W-9 Form **(must return page 1)**

The following criteria will be used to award the bid based on the best value for the District. The **%** for scoring is listed beside the criteria requirement.

1. Purchase price **(40%)**
2. Reputation of the vendor **(5%)**
3. Quality of vendor's goods or services **(15%)**
4. Extent to which the goods or services meet the district's needs **(20%)**
5. Vendor's past relationship with district **(10%)**
6. HUB requirements
7. Total long-term cost to the district to acquire the goods **(10%)**
8. Vendor's ultimate parent company or majority owner has its principal place of business in the State of Texas or employees at least 500 persons in this state (not applicable to contracts related to telecommunications and information services, building construction and maintenance, or instructional materials)
9. Any other relevant factor listed in the request for proposal

Availability of product and service in our local area

San Angelo Independent School District

Purchasing Department

Please duplicate the below label and affix to the outside of your sealed proposal envelope.

Sealed Bid

San Angelo Independent School District
Purchasing Department
1621 University Ave.
San Angelo, TX 76904
Attn: Jason A. Henry, Director of Purchasing

Bid: 26-007

Athletic Fields Projects, 2025 Bond

Company Name_____

Bid Deadline: 03/23/26 – 3:00 PM

Sealed Bid

Vendor's name and return address should be printed on the sealed proposal envelope.

San Angelo ISD has added a new feature to our bid opportunities webpage. You can sign up to receive an email alert whenever we post new bid opportunities to the webpage. Note: this is for all bid opportunities.

If you're interested in signing up, go to https://www.saisd.org/bids

Click on the orange bell icon on the webpage



Click on the word "Purchasing" in the box that pops up.
Click Next
Fill in your name & email address.
Click "signup"

San Angelo Independent School District

Special Terms and Conditions
Athletic Fields Projects, 2025 Bond
RFP # 26-007

The San Angelo Independent School District is accepting sealed proposals for various Athletic Facility construction projects throughout the District. This will include New Turf Fields, Turf Replacement, Lighting, New Tennis Courts, and Track Resurfacing. Full specs are attached; all vendors are encouraged to attend the pre-bid meeting on Wednesday March 11th at 9 am. Pre-Bid meeting will begin at San Angelo Stadium, at the softball field off Johnson. Immediately followed by Lone Star Middle School, Central High School, Old Bobcat Stadium, Lincoln Middle School, and finish at Lake View High School. All addresses are included in the bid form.

For more information, or to schedule a sight visit contact Jason A. Henry at 325 947-3759.

If this project is approved by the Board of Trustees, the district is expecting the work to take place during the Summer/ Fall of 2026 and continue to summer 2027. Must be delivered and in place by 7/15/27.

Proof of insurance will be required for general liability, automobile liability, and worker's comp. Please check the limits in the general conditions for bidding line 33.

All contractors/sub-contractors/employees of a contractor who work on District property where students are present must present a clear criminal history report to the District prior to the start of the project.

The Board of Trustees, for the purpose of complying with Section 2288, Subchapter B of the Texas Government Code for all public contracts, has adopted the prevailing wage rates as determined by the US Department of **Labor in accordance with the Davis —Bacon Act as the published rates for the District. It** is the responsibility of the contractor to pay the appropriate rate or higher on the construction project or be subject to penalty as set forth in section 2258.023 of the Texas General Government Code.
This project **will be subject to bonding requirements. See general conditions line 33.**

All proposals **MUST** be submitted on the proposal form provided.

Proposal documents **MUST be signed by the company's authorized representative in the space(s) provided. Failure to manually sign the proposal documents may result in disqualification of the proposal.**

The District reserves the right to waive formalities and/or irregularities and to accept or reject any/each item separately or as a whole.

Purchasing Department
1621 University
San Angelo, TX 76904
325.947.3759
Fax: 325.947.3837

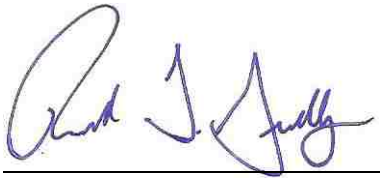
SKG
ENGINEERING, LLC
FIRM REGISTRATION NUMBER F-7608
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT

706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903

PHONE: 325.655.1288
FAX: 325.657.8189

SPECIFICATIONS
FOR
SAISD ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

03 10 00 CONCRETE FORMWORK
03 33 00 CONCRETE PLACEMENT
03 33 20 CONCRETE REINFORCEMENT
03 33 30 CAST IN PLACE CONCRETE
31 08 00 COMMISSIONING OF SITEWORK
31 10 00 SITE CLEARING
31 22 00 GRADING
31 23 00 EXCAVATION AND FILL
32 11 23 AGGREGATE BASE
32 13 13 CONCRETE PAVING
32 13 73 CONCRETE PAVING JOINT SEALANTS
32 18 23 INFILLED SYNTHETIC TURF
33 41 00 STORM DRAINAGE UTILIITES



Russell T. Gully, P.E. No. 87727
Firm Registration # F-7608
March 3, 2026
25-E-1488



SECTION 03 10 00 – CONCRETE FORMWORK – LAKE VIEW TENNIS COURTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Formwork erection.
B. Form cleaning.
C. Formwork tolerances.
D. Form removal.

1.2 RELATED SECTIONS

A. Section 03200 - Concrete Reinforcement.
B. Section 03300 - Cast-in-Place Concrete.

1.3 REFERENCES

A. TxDOT 2004 Standard Specification Item 420, Concrete Structures.

1.4 DESIGN REQUIREMENTS

A. Construct formwork, shoring and bracing to conform to design and code requirements: resultant concrete to conform to required shape, line and dimension.
B. The contractor is responsible for design and proper shoring/installation of all formwork.

1.5 QUALITY ASSURANCE

A. Owner will engage a testing and inspection service for quality control testing during construction.

1.6 COORDINATION

A. Coordinate this Section with other Sections of work which require attachment of components to formwork.
B. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Engineer.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

A. Form Materials: At the discretion of the Contractor and as approved by the Engineer.

2.2 FORMWORK ACCESSORIES

A. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

B. Corners: Fillet, Chamfer, rigid plastic or wood strip; as required.
C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.2 EARTH FORMS

A. Earth forms are not permitted, except at foundation grade beams. However, the perimeter grade beam shall be wood formed a minimum of 4" below final grade to ensure that concrete blow out is not seen. This applies to all perimeter grade beams at building ling, porches, flatwork, etc.

3.3 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements.
B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads.
C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
D. Align joints and make watertight. Keep form joints to a minimum.
E. Obtain approval before framing openings in structural members which are not indicated on Drawings.
F. Provide fillet and chamfer strips on external corners of beams, joists, and columns.
G. Wood or steel stakes used for construction of forms shall not be installed within the area of concrete placement. No form material shall be left in concrete.

3.4 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent.
D. Soak inside surfaces of untreated forms with clean water.

3.5 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.
B. Clean formed cavities of debris prior to placing concrete.
C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction

proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.5 FORMWORK TOLERANCES

A. Construct formwork to exceed required site tolerances.

3.6 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
B. Notify Engineer and Owner 48 hours to inspect work prior to placing concrete.

3.7 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

SECTION 03 33 00 – CONCRETE PLACEMENT – LAKE VIEW TENNIS COURTS

PART 1 - GENERAL

A. Furnish equipment, labor, materials. Convey and place consolidated concrete. Refer to Specifications Section 03 10 00 for Concrete Formwork.

1.1 PRECAUTIONS

A. Place no concrete until form, screeds, reinforcement, and conditions are approved; pipes, conduits, sleeves, thimbles, hangers, anchors, flashing, and other required work have been properly installed; forms properly cleaned.
B. Place no concrete when temperature is below 40 degrees or below 50 degrees and falling.
C. Remove hardened concrete, foreign materials from surfaces of conveying equipment, thoroughly wet forms, and remove debris before deposition of concrete.
D. Remove water from space to be occupied by concrete, pump to remove and provide continuous flow of concrete.

2.1 PLACING CONCRETE

A. Handle concrete and deposit in forms as rapidly as possible by methods which prevent segregation or loss of ingredients and avoid inclusion of foreign matter.
B. Place concrete, as nearly as practicable, in its final position.
C. Consolidate concrete immediately after placing by spading or mechanical vibration to insure contact with forms and embedded items. Tamp slab surfaces with suitable tools to force coarse aggregate away from surface.
D. Rate and method of placing shall be such that concrete between construction joints is placed in one continuous operation. Location and type of construction joints to be as approved or as shown on Drawings.
E. A tremie pipe shall be used to place concrete in piers, or in any other instance where concrete will free fall more than 6’-0” from the discharge point.

3.1 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall provide materials and placement of required items in order to eliminate barriers to the physically handicapped. The General Contractor shall direct any question about the handicap requirements to the Architect. Contractor shall verify any A.D.A. and Texas Accessibility Standard requirements and locations with the Architect prior to installation.

END OF SECTION

SECTION 03 33 20 – CONCRETE REINFORCEMENT – LAKE VIEW TENNIS COURTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reinforcing steel bars and accessories for cast-in-place concrete.

1.2 RELATED SECTIONS

A. Section 03 10 00 - Concrete Formwork.
B. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

A. TxDOT 2004 Standard Specifications, Item 440 - Reinforcing Steel.
B. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
C. ACI 318-83 - Building Code Requirements for Reinforced Concrete.

1.4 QUALITY ASSURANCE

A. Owner will engage a testing and inspection service for quality control testing during construction.

1.5 COORDINATION

A. Coordinate with placement of formwork, formed openings and other Work.

1.6 SUBMITTALS

A. Shop Drawings
Reinforcement – Detail drawings showing reinforcing steel placement, schedules, sizes, grades, and splicing and bending details. Drawings shall show support details including types, sizes and spacing.
B. Certificates
Reinforcing Steel – Certified copies of mill reports attesting that the reinforcing steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified herein, prior to the installation of reinforcing steel.

PART 2 - PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel Plain Bar and Rod Mats: ASTM A704, ASTM A615, Grade 40 or 60; steel bars or rods, unfinished.
B. Stirrup Steel: ASTM A82, unfinished.

2.2 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage, annealed type.
B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of

reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.

2.3 FABRICATION

A. Fabricate concrete reinforcing in accordance with TxDOT Standard Specification Item 440 - Reinforcing Steel.

PART 3 - EXECUTION

3.1 PLACEMENT

A. Place, support, and secure reinforcement against displacement. Do not deviate from required position.
B. Do not displace or damage vapor barrier. If vapor barrier is punctured, it shall be properly taped with tape provided by vapor barrier mfg.
C. Accommodate placement of formed openings.
D. Maintain concrete cover around reinforcement as follows:

Condition	Concrete Cover
Concrete not exposed to earth and weather	1.5 inches
Concrete exposed to earth or weather	2.0 inches
Concrete cast against and permanently exposed to earth	3.0 inches

3.2 FIELD QUALITY CONTROL

A. Inspect reinforcement to ensure that work is in accordance with design, and that supports, ties, and items are secure.
B. Notify Engineer and Owner 48 hours to inspect work prior to placing concrete.

END OF SECTION

SECTION 03 33 30 – CAST IN PLACE CONCRETE – LAKE VIEW TENNIS COURTS

PART 1 - GENERAL

A. Furnish concrete materials and equipment required to deliver concrete as specified below and shown on Drawings.

PART 2 - SUBMITTALS FOR REVIEW

A. The contractor shall submit the concrete mix design, including all admixtures and curing compounds to the engineer for review.

PART 3 - MATERIALS

A. Portland Cement: ASTM Specifications C150-49 of Air-Entraining Portland Cement C175-48T. Use Type IIIA where high early strength concrete is designated and Type I or IA for all other concrete work.
B. Coarse Aggregate: Hard, durable, uncoated crushed stone or gravel conforming to ASTM Specifications C33-40. Maximum size aggregate allowed is 1-1/2", 1/5 of narrowest dimension between forms of the concrete member, or 3/4 of minimum clean space between reinforcing bars.
C. Sand: Clean, hard, durable, uncoated grains free from silt, loam, or clay. Grade in size from fine to coarse with 95% to 100% passing (by weight) No. 4 sieve; 45% to 70% passing No. 16 sieve; 15% to 30% passing No. 50 sieve; and 3% to 8% passing No. 100 sieve.
D. Mixing water shall be clean and free from oil, acid, and injurious amounts of vegetable matters, alkalis, and other salts.
E. Admixture: "PSI" as manufactured by Gifford-Hill Co., or equal. Mix according to manufacturer's recommendations. Include all structural concrete.

PART 4 - STRENGTH, PROPORTIONS, AND MIXES OF CONCRETE

A. See Structural Drawings for type and strength of concrete. All concrete shall have a minimum **3,000** psi compressive strength at 28 days unless noted otherwise.
B. Proportions of cement, aggregate, and water to attain required plasticity and minimum compressive strength shall be determined by laboratory design for materials to be used.
C. Contractor shall obtain and pay for laboratory designed mixes.
D. Workability of concrete shall be such that concrete can be handled, placed, and worked into angles and corners of forms, around reinforcing steel and inserts without segregation and without water and fine material rising to surface.
E. Use method of measuring water and aggregate so as to secure specified proportions in each batch, and in a manner that proportion of water to cement can be closely controlled and easily checked at any time.
F. Concrete shall be mixed until there is a uniform distribution of materials throughout the mass and discharged completely before recharging. Mixer shall be rotated at speed recommended by manufacturer and continued for at least one minute after all materials are in mixer.
G. Transit mixed concrete shall conform to ASTM Specification C-94, latest edition, revised to date.

PART 5 - CONCRETE CONTROL TESTS

A. Make test cylinders from concrete mixed and at the direction of Architect/Engineer. A minimum of three (3) test cylinders shall be made for each pour.

B. Test Specimen: Shall be taken and tested by an approved testing laboratory, in accordance with ASTM Specifications for Compression Test of Concrete. Crush one (1) test cylinder at seven days and two (2) at twenty-eight days. Concrete tested which falls below the strength specified shall be removed at the expense of Contractor.

C. Make slump test for each set of cylinders. Only concrete within the following slump limits will be placed:

	Slump in Inches	
	Max.	Min.
Slabs (Tennis Courts)	6	4

Slump: Determined with a standard slump cone in accordance with ASTM Recommendations by an approved testing company.

D. Laboratory reports shall include:
1. Date of pour
2. Location of pour, so that identified on Plans
3. By whom cylinders taken, including name of individual
4. Slump
5. Temperature
6. Results of compression test

E. Distribution of Test Results: One copy to Structural Engineer and one copy to Architect. Test results which do not include above information are not acceptable, unless accompanied by letter explaining reason for non-compliance.

F. See General Notes on drawings for additional information regarding concrete mix design

END OF SECTION

SECTION 31 08 00 - COMMISSIONING OF SITEWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for Sitework.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions:
   1. 48 hours minimum prior to performing any work on site, contact Dig Tess to arrange for utility location services.
   2. Perform minor, investigative excavations to verify location of various existing underground facilities at sufficient locations to assure that no conflict with the proposed work exists and sufficient clearance is available to avoid damage to existing facilities.
   3. Perform investigative excavations 5 days minimum in advance of performing any excavation or underground work.
   4. Upon discovery of conflicts or problems with existing facilities, notify Engineer within 24 hours.

B. All work shall be performed in accordance with the Plans and Specifications. In the event there are inconsistencies between the plans and specifications, the more stringent shall apply.

3.2 PREPARATION

A. Protection:
   1. Erosion Control: Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or off-site drainage systems. The contractor and subcontractors shall be responsible for meeting the requirements of the TPDES General Permit No. TXR150000 and shall prepare a *Storm Water Pollution Prevention Plan* where required and adhere to the requirements set forth therein. The Contractor shall provide the Owner and Engineer with copies of all documentation associated with the plan.
   2. Dust Control: Take precautions necessary to prevent dust nuisance, both on-site and adjacent to public and private properties. Correct or repair damage caused by dust.
   3. Spillage: Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.
   4. Existing Plants and Features: Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain. Do not use heavy

equipment within branch spread. Interfering branches may be removed only with permission of Engineer. Do not damage other plants and features which are to remain.

B. Dimensional Control:
   1. Survey Control: Refer to the plans for coordinate points or dimensional control data. The contractor shall field verify points and protect the same during construction. The contractor shall be responsible for all construction staking associated with the project.

C. Repair / Restoration
   1. Adjust existing covers, boxes, and vaults to proposed/finished grade.
   2. Replace broken or damaged covers, boxes, and vaults.
   3. Independently confirm size, location, and number of covers, boxes, and vaults which require adjustment.

D. Traffic Control
   1. Contractor to provide traffic control devices throughout duration of project.

E. Field Quality Control
   1. Owner will engage a testing and inspection service for quality control testing during construction.
   2. Owner reserves right to require additional testing to re-affirm suitability of completed work including compacted soils which have been exposed to adverse weather conditions.

END OF SECTION

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Removal and disposal of all obstructions from the site that will interfere with the work, such as, but not limited to buildings, concrete drives, storm cellar, concrete slabs on grade, abandoned utility pipes or conduits, curbs and gutters, etc.
B. Install all barricades, fences, planking, bridges, bracing, shoring, lights, warning signs, guards, etc., as required for the protection of the public, street, sidewalks, adjoining property and workmen.
C. Pumping, bailing and draining of all surface or seepage water from the site.
D. Removal of trees, brush, existing vegetation, roots, logs, rocks, trash, debris, glass, decayed matter, etc., where appropriate for construction.

1.2 REGULATORY REQUIREMENTS

A. Conform to City codes for disposal of debris.
B. The Contractor shall be required to notify utility companies and the city water department when working in areas where utility lines might be encountered. The Contractor will be held responsible for all damage done to utility and water lines as a result of work done under this contract.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 CLEARING

A. Clear areas required for access to site and execution of Work.
B. Remove trees and shrubs within marked areas. Grub out slumps and roots.
C. Clear undergrowth and deadwood, without disturbing subsoil.
D. Remove tree slumps and roots to ensure that the tree is dead and will not affect the foundations or turf/landscaping/playground sites in the future.

3.2 PROTECTION

A. Protect plant growth and features remaining as final landscaping.
B. Protect benchmarks and existing work from damage or displacement.
C. Maintain designated site access for vehicle and pedestrian traffic.
D. Coordinate tree removal with the electrical service company to avoid damage to existing service lines.

3.3 REMOVAL

A. Clean up all debris caused by the work of this Section, keeping the premises, streets, and

adjacent property clean and neat at all times. After all work has been completed, patch any street and/or curb damaged by the work of this Contract in conformity with City requirements.

B. Clear areas established within the construction limits and execution of work. The contractor shall exercise caution to not damage at risk trees or trees designated to remain.

C. Trees, brush, slumps, and other deleterious matter, within the construction limits, and necessary for removal during construction shall be wasted off site.

D. Should field conditions exist which would warrant damage of a tree at risk, or a tree designated to remain, the contractor shall cease activity in that area and immediately contact the owner's representative for permission to proceed.

E. Holes remaining after removal of trees, slumps, etc., shall be backfilled with material approved by the Owner and compacted as directed except in areas to be excavated.

F. The Contractor shall complete the operation by blading, bulldozing, or other approved methods, so that the project shall be free of holes, ditches, or other abrupt changes in elevations that resulted from the clearing and grubbing operations.

G. Excavation of materials on areas where buildings, concrete pads, road pavement, etc. are located need to be taken down to the native soil. Deep plow prior to adding topsoil to reduce/eliminate voids.

H. Contractor shall be responsible for the removal of all debris from the site; this includes the costs of loading, hauling, and disposal of all material.

END OF SECTION

SECTION 31 22 00 - GRADING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Removal of existing materials, topsoil, and subsoil.
B. Cutting, grading, filling, rough contouring, and compacting the site for site work outside of the Structural Engineer's scope.

1.2 QUALITY ASSURANCE

A. Owner will engage a testing and inspection service for quality control testing during construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: The topsoil shall be fertile soil, be easily cultivated, be free from objectionable material, have a relatively high erosion resistance and be readily able to support the growth of planting, seeding, and sodding.
B. Structural Fill: As shown on the Plans.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify site conditions.
B. Verify that survey benchmark and intended elevations for the Work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.
B. Stake and flag locations of known utilities.
C. Locate, identify, and protect utilities that remain, from damage.
D. Protect above and below grade utilities that remain.
E. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
F. Protect benchmarks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 FILLING

A. Fill areas to contours and elevations with approved materials.

B. Place fill material on continuous layers and compact in accordance with the schedule at end of this section.
C. Maintain optimum moisture content of fill materials to attain required compaction density.
D. Make grade changes gradual. Blend slope into level areas.

3.4 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot from required elevation.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed at a rate of three tests per job-site or one test per 2,000 square yards, whichever is greater. The engineer may accept the work provided not more than one (1) out of five (5) consecutive density test performed is below the specified density, and provided the failing test is no more than one (1%) percent below the specified density.
B. Thickness measurement will occur at a rate of three tests per job-site or one test per 2,000 square yards, whichever is greater.
C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.6 SCHEDULES

A. Structural Fill:
Maximum 8 inches compacted depth per lift.
B. Compact to density as shown on the plans.
C. Topsoil & Subsoil Fill:
Maximum 8 inches compacted depth per lift.
D. Compact to density as shown on the plans.

END OF SECTION

SECTION 31 23 00 - EXCAVATION AND FILL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Preparation.
B. Excavating.
C. Backfilling and compaction.

1.2 FIELD MEASUREMENTS

A. Verify that survey bench mark, control point, and intended elevations for the Work are as shown on drawings.

1.3 COORDINATION

A. Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.
B. This specification does not pertain to work covered by the Structural Engineer’s scope.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

A. Embedment material shall be as shown on the plans or as approved by the Engineer.
B. Backfill material shall be as shown on the plans or as approved by the Engineer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum locations.
B. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
D. Maintain and protect above and below grade utilities which are to remain.
E. Cut out soft areas of subgrade not capable of compaction in place. Backfill with secondary backfill and compact to density equal to or greater than requirements for subsequent backfill material.

3.2 EXCAVATION

A. Conduct excavation of materials as required to provide the grades and elevations shown of the drawings and as required in the specifications.
B. Existing pavement, concrete, and other material required to be removed to facilitate the work shall be removed by the contractor and disposed of as required by law.
C. Stockpile excavated material in area designated by the engineer and remove excess material not to be reused or stockpiled from site.

3.3 BACKFILLING AND COMPACTION

A. Backfill Material: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.
B. Maintain optimum moisture content of fill materials within specified limits to attain required compaction density and moisture content.

3.4 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 0.10 feet of existing elevations or as shown on the plans.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed at a rate of three tests per job-site or one test per 1,000 square yards, whichever is greater. The engineer may accept the work provided not more than one (1) out of five (5) consecutive density test performed is below the specified density, and provided the failing test is no more than one (1%) percent below the specified density.
B. Thickness measurement will occur at a rate of three tests per job-site or one test per 3,000 square yards, whichever is greater.
C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.6 PROTECTION OF FINISHED WORK

A. Reshape, recompact, and maintain fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 32 11 23 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Aggregate base course.
B. COORDINATION
   1. This specification does not pertain to work specifically covered by the Structural Engineer's scope.
C. QUALITY ASSURANCE
   1. Owner will engage a testing and inspection service for quality control testing during construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use only new materials conforming to the requirements of these specifications, as shown on the plans, or as approved by the Engineer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

A. Spread aggregate over prepared substrate to a total compacted thickness as shown on the plans.
B. Place aggregate in maximum 8 inch layers and compact to specified density.
C. Level and contour surfaces to elevations and grades indicated. Account for pavement thickness and other structural features to produce the final grade elevations.
D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
B. Variation From Design Elevation: Within 0.10 feet of design elevation.
C. Scheduled Compacted Thickness: Shall not be deficient by more than 1/2 inch in thickness.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed at a rate of three tests per job-site or one test per 3,000 square yards, whichever is greater. The engineer may accept the work provided not more than one (1) out of five (5) consecutive density test performed is below the specified density, and provided the failing test is no more than one (1%) percent below the specified density.
B. Thickness measurement will occur at a rate of three tests per job-site or one test per 3,000 square yards, whichever is greater.
C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION

SECTION 32 13 13 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Concrete Paving
1. Driveways.
2. Roadways.
3. Parking lots.
4. Curbs and gutters.
5. Walks.

B. Related Requirements:
1. Divisions 01 Specification Sections apply to Work of this Section.
2. Section 32 13 73 Concrete Paving Joint Sealants
3. Section 32 17 23 Pavement Markings

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation meeting with Owner, Engineering, and contractor as necessary.
1. Review methods and procedures related to concrete paving, including but not limited to, the following:
a. Concrete mixture design.
b. Quality control of concrete materials and concrete paving construction practices.
2. Require representatives of each entity directly concerned with concrete paving to attend

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For the following, from manufacturer:
1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

B. Material Test Reports: For each of the following:
   1. Aggregates**.**

C. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Stamped Detectable Warning Installer Qualifications: An employer of workers trained and approved by manufacturer of stamped concrete paving systems.
B. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
C. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Primary Designer specifically approves such deviations in writing.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.8 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
   1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
   2. Do not use frozen materials or materials containing ice or snow.
   3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
   1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
   2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
   3. Fog-spray forms**, steel reinforcement,**] and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
   1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. **Do not use notched and bent forms.**

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064, fabricated from steel wire into flat sheets.
B. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064, flat sheet.
C. Epoxy-Coated Welded-Wire Reinforcement: ASTM A 884, Class A, plain steel.
D. Reinforcing Bars: ASTM A 615, Grade 60 deformed.
E. Galvanized Reinforcing Bars: ASTM A 767, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615, Grade 60 deformed bars.
F. Epoxy-Coated Reinforcing Bars: ASTM A 775; with ASTM A 615, Grade 60 deformed bars.
G. Steel Bar Mats: ASTM A 184; with ASTM A 615, Grade 60 deformed bars; assembled with clips.
H. Plain-Steel Wire: ASTM A 1064.
I. Deformed-Steel Wire: ASTM A 1064
J. Epoxy-Coated-Steel Wire: ASTM A 884, Class A; coated.
K. Joint Dowel Bars: ASTM A 615, Grade 60 plain-steel bars**; where called on plans zinc coated (galvanized) after fabrication according to ASTM A 767, Class I coating**. Cut bars true to length with ends square and free of burrs.
L. Epoxy-Coated, Joint Dowel Bars: ASTM A 775, Grade 60 plain-steel bars.
M. Tie Bars: ASTM A 615, Grade 60; deformed.
N. Hook Bolts: ASTM A 307, Grade A internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
O. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
   1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
   2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
P. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
Q. Zinc Repair Material: ASTM A 780.

2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
   1. Portland Cement: ASTM C 150/C 150M, portland cement **Type I, Type II, Type**

I/II, or Type IL.

2. Fly Ash: ASTM C 618, **Class C or Class F**.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
4. Blended Hydraulic Cement: ASTM C 59, **Type IS, portland blast-furnace slag, Type IP, portland-pozzolan, Type IL, Portland-limestone** cement.

B. Normal-Weight Aggregates: ASTM C33, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 5 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.
   1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
   2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Exposed Aggregate: Selected, hard, and durable; washed; free of materials with deleterious reactivity to cement or that cause staining; from a single source, with gap-graded coarse aggregate as follows:
   1. Aggregate Sizes: 1/2 to 3/4 inch nominal.
   2. Aggregate Source, Shape and Color .

D. Air-Entraining Admixture: ASTM C 260/C 260M.

E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
   1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
   2. Retarding Admixture: ASTM C 494/C 494M, Type B.
   3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
   4. High-Range, Water-Reducing Admixture: ASTM C 494/, Type F.
   5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
   6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

F. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
   1. Color: **As called for on the plans**.

G. Water: Potable and complying with ASTM C 94

2.5 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches.
   1. Products: Demonstrate compliance with the project requirements

B. Synthetic Fiber: Fibrillated polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C 1116, Type III, [1/2 to 1-1/2 inches long.
   1. Products: Demonstrate compliance with the project requirements

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, **Class 3, burlap cloth made from jute or kenaf, weighing approximately** 9 oz./sq. yd. **dry or cotton mats**.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

1. Products: Demonstrate compliance with the project requirements.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating
   1. Products: Demonstrate compliance with the project requirements.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.
   1. Products: Demonstrate compliance with the project requirements

2.7 RELATED MATERIALS

A. Joint Fillers: **ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork** in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy-Bonding Adhesive: ASTM C 881, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
   1. **Types I and II, non-load bearing and Types IV and V, load bearing**, for bonding hardened or freshly mixed concrete to hardened concrete.

E. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
   1. Products: Demonstrate compliance with the project requirements.

F. Pigmented Mineral Dry-Shake Hardener: Factory-packaged, dry combination of portland cement, graded quartz aggregate, color pigments, and plasticizing admixture. Use color pigments that are finely ground, nonfading mineral oxides interground with cement.
   1. Products: Demonstrate compliance with the project requirements
   2. Color: **As indicated on the plans.**

2.8 STAMPED DETECTABLE WARNING MATERIALS

A. Detectable Warning Stamp: Semirigid polyurethane mats with formed underside capable of imprinting detectable warning pattern on plastic concrete; perforated with a vent hole at each dome.
   1. Manufacturers: Demonstrate compliance with the project requirements and shall meet requirement of the Texas Accessibility Standards and ADA Standards.
   2. Size of Stamp: One piece, 24 by 48 inches minimum.

B. Liquid Release Agent: Manufacturer's standard, clear, evaporating formulation designed to facilitate release of stamp mats.
   1. Products: Demonstrate compliance with project requirements

2.9 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash or Pozzolan: 20 percent.
2. Slag Cement: 40 percent.
3. Combined Fly Ash or Pozzolan, and Slag Cement: 40 percent, with fly ash or pozzolan not exceeding 20 percent.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
1. Air Content: (3) three to (7) seven percent for 1-1/2-inch nominal maximum aggregate size.
2. Air Content: (3) three to (6) seven percent for 3/4" and 1-inch nominal maximum aggregate size.

D. Limit water-soluble, chloride-ion content in hardened concrete to **0.30** percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use **water-reducing admixtures, high-range, water-reducing and retarding admixtures, plasticizing and retarding admixtures** in concrete as required for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

F. Synthetic Fiber: Where required on the project documents uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd.

G. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

H. Concrete Mixtures: Normal-weight concrete.
1. Compressive Strength is a minimum of 3,600 psi at 28 Days or as called for on the plans.
2. Maximum W/C Ratio at Point of Placement: **0.50**.
3. Slump Limit: 5 inches

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Furnish batch certificates for each batch discharged and used in the Work.
1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, elevation tolerances, and compaction requirements.
B. Proof-roll prepared subbase surface below **concrete flatwork or pavement** with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 25 tons to identify soft pockets and areas of excess yielding.
   1. Completely proof-roll subbase. Limit vehicle speed to 3 mph.
   2. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 31 of the specifications.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.
F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963.
G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Coordinate joint types, descriptions, and locations with Drawings. Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
   1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
   1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
   2. Provide tie bars at sides of paving strips where indicated.
   3. Butt Joints: Use **bonding agent or epoxy-bonding adhesive** at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
   4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys where indicated on the plans or as required. Embed keys at least 1-1/2 inches into concrete.
   5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
   1. Locate expansion joints at intervals not to exceed 52 feet unless otherwise indicated.
   2. Extend joint fillers full width and depth of joint.
   3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
   4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
   5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
   6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes.
      a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
      a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.

3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation**, steel reinforcement,** and items to be embedded or cast-in.

B. Remove snow, ice, or frost from subbase surface **and steel reinforcement** before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies**, reinforcement,** or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating **reinforcement dowels and** joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.

1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.

2. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 SPECIAL FINISHES

A. Monolithic Exposed-Aggregate Finish: Expose coarse aggregate in paving surface as follows:
   1. Immediately after float finishing, spray-apply chemical surface retarder to paving according to manufacturer's written instructions.
   2. Cover paving surface with plastic sheeting, sealing laps with tape, and remove when ready to continue finishing operations.
   3. Without dislodging aggregate, remove mortar concealing the aggregate by lightly brushing surface with a stiff, nylon-bristle broom. Do not expose more than one-third of the average diameter of the aggregate and not more than one-half of the diameter of the smallest aggregate.
   4. Fine-spray surface with water and brush. Repeat cycle of water flushing and brushing until cement film is removed from aggregate surfaces to depth required.

B. Seeded Exposed-Aggregate Finish: Immediately after initial floating, spread a single layer of aggregate uniformly on paving surface. Tamp aggregate into plastic concrete and float finish to entirely embed aggregate with mortar cover of 1/16 inch.
   1. Spray-apply chemical surface retarder to paving according to manufacturer's written instructions.
   2. Cover paving surface with plastic sheeting, sealing laps with tape, and remove sheeting when ready to continue finishing operations.
   3. Without dislodging aggregate, remove mortar concealing the aggregate by lightly brushing surface with a stiff, nylon-bristle broom. Do not expose more than one-third of the average diameter of the aggregate and not more than one-half of the diameter of the smallest aggregate.
   4. Fine-spray surface with water and brush. Repeat cycle of water flushing and brushing until cement film is removed from aggregate surfaces to depth required.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on paving surface according to manufacturer's written instructions and as follows:
   1. Uniformly spread 40 lb/100 sq. ft. of dampened, slip-resistive aggregate over paving surface in two applications. Tamp aggregate flush with surface using a steel trowel, but do not force below surface.
   2. Uniformly distribute approximately two-thirds of slip-resistive aggregate over paving surface with mechanical spreader, allow to absorb moisture, and embed by power floating. Follow power floating with a second slip-resistive aggregate application, uniformly distributing remainder of material at right angles to first application to ensure uniform coverage, and embed by power floating.
   3. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
   4. After curing, lightly work surface with a steel-wire brush or abrasive stone and water to expose nonslip aggregate.

D. Rock-Salt Finish: After initial **troweling**, uniformly spread rock salt over paving surface at the rate of 5 lb/100 sq. ft.

1. Embed rock salt into plastic concrete with **roller or magnesium float**.

E. Pigmented Mineral Dry-Shake Hardener Finish: After initial floating, apply dry-shake materials to paving surface according to manufacturer's written instructions and as follows:
   1. Uniformly spread dry-shake hardener at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer to match paving color required.
   2. Uniformly distribute approximately two-thirds of dry-shake hardener over the concrete surface with mechanical spreader; allow hardener to absorb moisture and embed it by power floating. Follow power floating with a second application of pigmented mineral dry-shake hardener, uniformly distributing remainder of material at right angles to first application to ensure uniform color, and embed hardener by final power floating.
   3. After final power floating, apply a hand-troweled finish followed by a broom finish.
   4. Cure concrete with curing compound recommended by dry-shake hardener manufacturer. Apply curing compound immediately after final finishing.
   5. Remove residual release agent according to manufacturer's written instructions, but no fewer than three days after stamping concrete. High-pressure-wash surface and joint patterns, taking care not to damage stamped concrete. Control, collect, and legally dispose of runoff.

3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by **moisture curing, moisture-retaining-cover curing, curing compound, or combination** as follows:
   1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
      a. Water.
      b. Continuous water-fog spray.
      c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
   2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
   3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period. **Do not use curing compound on surfaces to be covered by unit pavers, tiles, or other materials set in mortar**.

3.10 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:
   1. Elevation: 3/4 inch.
   2. Thickness: Plus 1/2 inch, minus 1/4 inch.
   3. Surface: Gap below 10-feet long; unleveled straightedge not to exceed 1/2 inch.
   4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
   5. Lateral Alignment and Spacing of Dowels: 1 inch.
   6. Vertical Alignment of Dowels: 1/4 inch.
   7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
   8. Joint Spacing: 3 inches.
   9. Contraction Joint Depth: Plus 1/2 inch, no minus.
   10. Joint Width: Plus 1/8 inch, no minus.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: **Owner will engage** a qualified testing agency to perform tests and inspections.

B. Testing Services: Testing and inspecting composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
   1. Testing Frequency: Make at least one set of concrete cylinders for each 50 cu. yd. or fraction thereof of each concrete mixture placed each day.
      a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
   2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
   3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
   4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
   5. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of at least three standard cylinder specimens for each composite sample.
   6. Compressive-Strength Tests: ASTM C 39; test one specimen at seven days and two specimens at 28 days.
      a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 200 psi.

D. Test results shall be reported in writing to Engineer of Record, concrete manufacturer, and Contractor within 72 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking

strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Primary Designer but will not be used as sole basis for approval or rejection of concrete.
F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Primary Designer.
G. Concrete paving will be considered defective if it does not pass tests and inspections.
H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
I. Prepare test and inspection reports.

3.12 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Primary Designer.
B. Drill test cores, where directed by Primary Designer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Cold-applied joint sealants.
2. Hot-applied joint sealants.
3. Cold-applied, fuel-resistant joint sealants.
4. Hot-applied, fuel-resistant joint sealants.
5. Joint-sealant backer materials.
6. Primers.

B. Related Requirements:
1. Section 03 13 13 Concrete Paving.

1.2 SUBMITTALS

A. Product Data:
1. Concrete pavement joint sealants.
2. Joint-sealant backer materials.

B. Samples for Initial Selection: Manufacturer's standard color sheets, showing full range of available colors for each type of joint sealant.

C. Samples for Verification: Actual sample of finished products for each kind and color of joint sealant required.
1. Size: Joint sealants in 1/2-inch wide joints formed between two 12-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Paving-Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.3 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F**.**
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain joint sealants from single manufacturer.

2.2 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backer materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D5893, Type NS.

B. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D5893, Type SL.

C. Multicomponent, Nonsag, Urethane, Elastomeric Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Use T.

D. Single Component, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C920, Type S, Grade P, Class 25, for Use T.

E. Multicomponent, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C920, Type M, Grade P, Class 25, for Use T.

2.4 HOT-APPLIED JOINT SEALANTS

A. Hot-Applied, Single-Component Joint Sealant, Type I: ASTM D6690.

B. Hot-Applied, Single-Component Joint Sealant, Type I or Type II: ASTM D6690.

C. Hot-Applied, Single-Component Joint Sealant, Type I, II, or III: ASTM D6690.

D. Hot-Applied, Single-Component Joint Sealant, Type IV: ASTM D6690.

2.5 COLD-APPLIED, FUEL-RESISTANT JOINT SEALANTS

A. Fuel-Resistant, Single-Component, Pourable, Modified-Urethane, Elastomeric Joint Sealant: ASTM C920, Type S, Grade P, Class 25, for Use T.

B. Fuel-Resistant, Multicomponent, Pourable, Modified-Urethane, Elastomeric Joint Sealant:

ASTM C920, Type M, Grade P, Class 12-1/2 or 25, for Use T.

2.6 HOT-APPLIED, FUEL-RESISTANT JOINT SEALANTS

A. Hot-Applied, Fuel-Resistant, Single-Component Joint Sealants, Type I or Type II: ASTM D7116.

B. Hot-Applied, Fuel-Resistant, Single-Component Joint Sealants, Type III: ASTM D7116.

2.7 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.8 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backers to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of joint-sealant backer materials.
   2. Do not stretch, twist, puncture, or tear joint-sealant backer materials.
   3. Remove absorbent joint-sealant backer materials that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backer material installation, using proven techniques that comply with the following:
   1. Place joint sealants so they fully contact joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants in accordance with the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
   1. Remove excess joint sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.5 PAVING-JOINT-SEALANT SCHEDULE

A. Joints within concrete paving:
   1. Joint Location:
      a. Expansion and isolation joints in concrete paving.
      b. Contraction joints in concrete paving.

c. Other joints as indicated.

2. Joint Sealant: High-performance polyurethane, elastomeric joint sealant
3. Joint-Sealant Color: Match concrete color to the greatest extent possible.

B. Joints within concrete paving and between concrete and asphalt paving:
1. Joint Location:
a. Joints between concrete and asphalt paving.
b. Joints between concrete curbs and asphalt paving.
c. Other joints as indicated.
2. Joint Sealant: Hot-applied, single-component joint sealant.
3. Joint-Sealant Color: Manufacturer's standard color.

C. Fuel-resistant joints within concrete paving:
1. Joint Location:
a. Expansion and isolation joints in concrete paving.
b. Contraction joints in concrete paving.
c. Other joints as indicated.
2. Joint Sealant: Fuel-resistant, pourable, modified-urethane, elastomeric joint sealant.
3. Joint-Sealant Color: Manufacturer's standard color.

END OF SECTION 321373

SECTION 32 18 23 – INFILLED SYNTHETIC TURF

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this section.

1.2 SCOPE OF WORK

Furnish all labor, materials, tools and equipment necessary to install, in place, all synthetic turf material as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturer's written installation instructions, and in accordance with all approved shop drawings.

A. Prior to order of materials, the Turf Contractor shall submit the following:
1. Product Data including Independent Test Lab Results
2. Installation Details
3. Sample Warranty
4. Field layout and striping plans
5. Details on construction, especially any details that may deviate from plans and specifications.

B. After the owner executes a Certificate of Substantial Completion, the Contractor shall submit to the Owner three (3) copies of Maintenance Manuals, which will include necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

1.3 SHOP DRAWINGS

A. Shop drawings shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the Owner for written approval prior to the manufacturing and shipment of materials. The approved drawings shall comprise authority for any discrepancies.

B. Submit drawings for:
1. Installation details; edge detail, goal post detail, other inserts and covers, etc.
2. Striping plan; layouts showing any field lines, markings and boundaries, colors of turf and field logos per project drawings.

1.4 QUALITY ASSURANCE

A. Manufacturer/Installer's Experience:

The synthetic turf installer/manufacturer shall have manufactured and installed at least thirty (30) similar installations of full-size baseball or softball fields (minimum of 60,000 SF) in the United States within the past five (5) years with tufted synthetic turf infilled with a layered system of pea gravel and rubber. .

The Turf Contractor shall employ only qualified, experienced supervisors and technicians skilled in the installation of the specified system.

B. Turf Contractor shall meet the following criteria:
1. Turf Contractor must have proper Contractors license, authority to do business in the state of Texas, in good standing, and have never had revocation of the same.
2. Turf Contractor must have NOT had a Surety or Bonding Company finish work on any contract within the last five (5) years.
3. Turf Contractor must have not been disqualified or barred from performing work for any public Owner or other contracting entity in the last ten (10) years.
4. Turf Contractor must be a member of American Sports Builders Association (A.S.B.A) for more than 5 years and be in good standing with the association and must have a Certified Field Builder on staff during the bidding and construction process. Proof of same must be submitted with the bid.
5. Any Turf Contractor which has been in business for less than 5 years, or that does not comply with Par. 4 hereinabove will not be considered as a contractor or supplier, and, in turn, will be disqualified. No exceptions.
6. Turf Contractor must be a single source contractor. The contractor must install the synthetic turf and the base construction, repair or re-grading with its own employees (not subcontractors) and must self-perform 100% of total scope of work.
7. Turf Contractor must manufacture or source the synthetic turf in the United States.
8. Turf Contractor must self-perform the laser grading of the stone, curb work, drainage work and all other site work associated with the construction of the synthetic turf field.

C. Warranty:

The Turf Contractor shall submit the synthetic turf manufacturer's warranty. The warranty guarantees the usability and playability of the synthetic turf system for its intended uses for an eight (8) year period commencing with the date of Substantial Completion.

1. The warranty submitted must have the following characteristics:
a. Must provide coverage for eight (8) years from the date of Substantial Completion.
b. Must warrant materials and workmanship.
c. Must verify through a third party that the materials installed meet or exceed the product Specifications.
d. Must have a provision to either make a cash refund or repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
e. Must be a manufacturer’s warranty from a single source covering workmanship and all self-manufactured or procured materials.

1.5 SCHEDULE

A. Turf Contractor shall complete all work on the synthetic turf system in accordance with the published project schedule.

B. Turf Contractor shall be afforded unencumbered access to the construction site to reach the turf field area being installed.

1.6 SURFACE AREA

A. The Turf Contractor is to verify all field measurements prior to installation. Any discrepancies between the actual measurements and those on approved drawings shall be identified by Contractor, in writing.

1.7 UTILITIES

A. Contractor shall coordinate with the owner for construction water and electricity for installation. Contractor shall coordinate or provide adequate toilet and wash up facilities for construction workers.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The pile fibers shall be tufted into K29 primary backing, consisting of warp-knitted (by means of sonic stitching), dual-layered woven PP fabrics designed specifically for outdoor athletic turf applications. One layer shall incorporate polyester thread in the woven backing to maximize primary backing stability. The primary backing shall have a weight of approximately 7.5 oz per square yard.

B. Synthetic turf shall be a tufted carpet of a helix shaped dual color monofilament fiber, tufted into a grass-like fabric coated with a secondary backing of high-grade polyurethane. The monofilament synthetic turf yarn shall be comprised of a linear low density polyethylene polymer (LLDPE) and the entire shaft of the fiber must be curled into a helical shape for fiber resiliency. The turf fabric shall be filled with a layered system of pea gravel and rubber. The pea gravel shall have a sieve size of 8/14 mesh and the rubber shall be SBR rubber having a sieve size of 10/20 mesh.

C. All components and their installation methods shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow through-drainage allowing free movement of surface run-off through the turf fabric where such water may flow to the existing subbase and into the field drainage system

D. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use.

E. Pile yarn (Polyethylene) shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water and airborne pollutants.

F. Infill material shall be layered system of pea gravel and rubber in accordance with the manufacturer’s recommendations and the owner’s preference.

G. Perimeter and interior edge details, underground storm sewer piping and connections, and goal post

foundations required for the system shall be as detailed on the construction documents and as approved by the Owner.

H. The entire home plate circle and pitching circle for softball shall utilize a paved in place elastic layer (at least 16 mm in thickness) for extra turf resiliency.

I. Basis of Design: Major Play Helix for Softball and Baseball fields and Matrix Blend for Football and Soccer fields as manufactured by Hellas or approved equal.

Standard	**Property**	**Specification**
ASTM D418/D5848	Pile Weight	40-52 oz. /Sq. Yd.
ASTM D5848	Primary Backing Weight	7.5 oz. /Sq. Yd.
ASTM D5848	Secondary Coating Weight	20-26 oz. /Sq. Yd.
ASTM D5848	Total Weight	67.5 – 85.5 oz. /Sq. Yd.
ASTM D1907	Yarn Denier (Mono)	12,400
ASTM D418/D5848	Pile Height (Softball – Baseball)	Finished 1.5 - 2” (+/- 1/8”)
	Pile Height (Football – Soccer)	Finished 2_-2.25” (+/-1/8”)
ASTM D5793	Tufting Gauge	3/8” - 1/2”
ASTM D5848	Primary Backing	Multi-Layer Warp-knitted polypropylene
ASTM D5848	Secondary Coating	Polyurethane
ASTM D1335	Tuft Bind without Infill	8 lbs. +/-
ASTM D1682/D5034	Grab Tear (length)	>250 lbs. Force
ASTM D1682/D5034	Grab Tear (width)	>350 lbs. Force
ASTM D4991	Carpet Permeability	>40 inches/hour
ASTM D2859	Flammability (Pill Burn)	Pass
ASTM F355	G-max (Impact Attenuation) (Football – Soccer)	<130 at installation <190 over warranty life
ASTM E-11	Infill	4.5 - 6 lbs. +/- per square foot
	Fabric Width	15’
	Perforation	3/16” Holes 4” x 4”
ASTM D3218	Yarn (Mono)	Mono: Yarn Matrix with Helix Technology Average Thickness 170 microns LLDPE Resin
All Characteristics listed above are nominal +/- 10%		

Turf to incorporate life like individual blades of grass, tufted into the strongest and most dimensionally stable backing system available with a polyurethane pre-coat for the ultimate in tuft-bind.
Turf to be is filled with a pea gravel (2-3 lbs) and rubber (2.5-3.5 lbs) infill – Infill will be a minimum of 75% of synthetic turf pile height at time of completion. Ratios will be customized for playability to the various areas of the field (infield dirt, grass, warning track, etc.)

Due to the many variations in manufacturing dye lots, it should be expected that some variation in fiber color exists. Although we consider these variances to be minimal, there is no way to assure exact color and absolute uniformity of color hues. Variances in color amongst fiber does not affect the performance or warranty of the fiber.

Helix shape memory technology is added to monofilament fibers during the manufacturing/extrusion process which makes the fiber twist into a helix shape. This unique shape locks in and secures the infill. The monofilament fibers twist to cover and trap the rubber granules reducing infill migration.

PART 3 - EXECUTION

3.1 GENERAL

A. The installation shall be performed in full compliance with approved shop drawings.

B. Only factory-trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the synthetic turf manufacturer's installation supervisors shall undertake the placement of the system.

C. The surface to receive the synthetic turf shall be inspected and certified by the turf manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.

3.2 REMOVAL

A. If the synthetic turf installation is to be a replacement of an existing field the Turf Installer shall be responsible for removing the existing synthetic turf system.

B. All removal operations shall be performed by personnel fully familiar with the materials and their application, under the full-time direction and supervision of a qualified technical supervisor employed by the Installer of the Infilled Synthetic Turf System. The technical supervisor shall have a minimum of 5 years of experience.

3.3 INSTALLATION

A. The subbase and curbs shall be inspected by the Contractor by means of digital elevation equipment. The Contractor shall fine grade the subbase suitably - including properly rolling and compacting the base to achieve a surface planarity within ¼" in 10 feet.

B. The Turf Project Superintendent shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule and proper mixing ratios.

C. Synthetic turf shall be loose laid across the field and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed, provided standard playing field dimensions are utilized, except as required for inlaid fabric striping or to accommodate programmed cut-outs.

D. All seams shall be flat, tight, and permanent with no separation or fraying. All seams and markings shall be adhered to a special tape with a single component, high strength polyurethane adhesive applied per the Turf Supplier's standard procedures for outdoor applications.

E. Infill materials shall be properly applied in numerous thin lifts using special broadcasting equipment to produce a layered system of pea gravel and performance infill. The turf shall be raked and brushed properly as the mixture is applied. The infill materials can only be applied when the turf fabric is dry.

F. Weather/climatic conditions may be a factor in delay of installation and shall not warrant the accrual of additional liquidated damages. Should the ambient outdoor temperature fall below 45 degrees Fahrenheit, the Turf Contractor and Owner will discuss available options and/or stoppage of work. However, the final decision shall be at the Turf Contractor's discretion.

3.4 FIELD MARKINGS AND DECORATIONS

A. Field markings and decorations shall be installed in accordance with approved project shop drawings.

3.5 CLEAN UP

A. Turf Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. The Turf Contractor shall keep the area clean throughout the project and clear of debris.

C. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.6 CONTRACTOR PROVIDED SUPPLIES AND EQUIPMENT

A. Maintenance Equipment

Provide two TCA 1400 Turf Sweepers from SMG.

B. Additional supplies

Provide additional turf as called for on the plans.

END OF SECTION

SECTION 33 41 00 - STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Storm sewer drainage piping, fittings, and accessories.
B. Storm drainage structures.

1.2 MEASUREMENT AND PAYMENT

A. As identified on the Bid-Agreement Form. Includes supplying material, piping, embedment, fittings, accessories, trenching, and backfilling, placing, compacting, and testing.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO)
    a. AASHTO M252 - Corrugated Polyethylene Drainage Pipe
    b. AASHTO M294 - Corrugated Polyethylene Drainage Pipe
    c. AASHTO MP7-97 - Corrugated Polyethylene Drainage Pipe
B. American Society for Testing and Materials (ASTM)
    a. ASTM A74 - Cast Iron Soil Pipe and Fittings
    b. ASTM A185 - Steel welded Wire Fabric, Plain, for Concrete Reinforcement
    c. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
    d. ASTM C76 - Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
    e. ASTM C150 - Portland Cement
    f. ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
    g. ASTM C564 - Rubber Gasket for Cast Iron Soil Pipe and Fittings
    h. ASTM C969 - Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
    i. ASTM D3034 - Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings
    j. ASTM D3212 - Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
    k. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe
C. American Concrete Institute (ACI)
    a. ACI 301 - Specifications for Structural Concrete

1.4 QUALITY ASSURANCE

A. All installation and product specification shall meet the manufacturer’s recommendations or those herein, whichever is more stringent.

1.5 SUBMITTALS

A. Product Data: Provide data on pipe materials, pipe fittings, and accessories. Provide shop drawings for precast inlets, catch basins and junction boxes.
B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
C. Project Record Documents
    a. Accurately record actual locations of pipe runs, connections, catch basins, cleanouts, and invert elevations.
    b. Identify and describe unexpected variations to subsoil conditions and location of uncharted utilities.

1.6 PROJECT CONDITIONS

A. Coordinate work with termination of storm sewer including connection to municipal storm sewer system.
B. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. High Density Polyethylene Pipe (HDPE): ASTM D3212, smooth interior/ annular exterior. It is the intent of these specifications that HDPE pipe will be installed unless specifically indicated otherwise on the Drawings or approved by the Engineer and Owner. Pipe shall be installed in accordance with pipe manufacturer's installation Guidelines for Culvert Storm Drainage Applications.
    a. Pipe Joints and fittings shall conform to ASTM D3212 AND D4104.
    b. Acceptable manufacturers: Advanced Drainage Systems, Inc. "ADS N-12", HANCOR, INC. "Hi-Q", or approved equal.
B. Polyvinyl Chloride (PVC) Pipe: ASTM D3034, rated SDR 35, continually marked with manufacturer's name, pipe size, cell classification, SDR rating, and ASTM D 3034 classification. It is the intent of these specifications that PVC pipe will be permitted to be installed unless specifically indicated otherwise on the Drawings or approved by the Engineer and Owner.
    a. Pipe joints: ASTM D 3212 using restrained gasket conforming to ASTM F477.
C. Stormwater Infiltration Panels: Molded polypropylene, open bottom, arch shaped chambers designed to store stormwater and infiltrate stormwater into surrounding soils.

2.2 DRAINAGE STRUCTURES

A. Drain Basin or Inlets: Provide in accordance with the Drawings.
    a. PVC surface drainage inlets shall include the drain basin type as indicated on the drawings and referenced herein. The ductile iron frame and grate for each of these fittings are to considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The inlet shall be as manufactured by Nyloplast a

division of Advanced Drainage Systems, Inc. or prior approved equal.

B. Curb Inlet: Provide in accordance with the Drawings.
   a. Pre-cast concrete curb inlet in accordance with TxDOT Standard Specifications.

C. Cast-In-Place concrete for drainage structures including manholes, inlets, catch basins, collars, support blocks, headwalls and paved ditches shall conform to ACI 301.
   a. Compressive Strength: 3600 psi at 28 days.
   b. Reinforcement: ASTM A615, grade 40 or 60 deformed reinforcing bars, and ASTM A185 for wire fabric.
   c. Cement Mortar used for paving inverts, filling lift holes, joints, patching and anchoring castings shall consist of one part Portland cement, type I, ASTM C150, 1/4 part hydrated lime, ASTM C206 and 2-1/2 parts clean, well-graded sand and water free of suspended matter, alkali, and containing no industrial or domestic waste.

A. PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that trench cut and excavation is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Hand trim excavations to required elevations. Correct over excavation with bedding material.
B. Remove large stones or other hard matter that could damage piping or impede consistent backfilling or compaction.
C. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by licensed land survey and replaced, as necessary, by same.

3.3 INSTALLATION - PIPE

A. The pipe shall be inspected for defects and cracks before being lowered into the trench, piece by piece. Any defective, damaged or unsound pipe or any pipe that has had its grade disturbed after laying shall be taken up and replaced. Open ends shall be protected with a stopper to prevent earth or other material from entering the pipe during construction. The interior of the pipe shall be free from dirt, excess water and other foreign materials as the pipe laying progresses and left clean at the completion of the installation.
B. Excavate pipe trench and place bedding material in accordance with Section 02300 and construction drawings.
C. Installation shall commence at the lowest point for each segment of the route.
D. Lay pipe to the required line and slope gradients with the necessary fittings, bends, manhole, risers and other appurtenances placed at the required location as noted on Drawings.

E. Do not displace or damage pipe when compacting.
F. No pipe shall be laid in water or when trench conditions are unsuitable for such work.
G. Joints:
    a. Soil tight joints shall be constructed as described herein and in accordance with manufacturer's installation instructions with the intent that they be made watertight.
    b. PVC fittings shall be attached to the pipe by solvent welding according to the manufacturer's recommendations.

3.4 INSTALLATION – MANHOLES, CATCH BASINS, INLETS, AND JUNCTION BOXES

A. Drainage structures shall be constructed in accordance with details shown on Drawings and in accordance with the specifications as applicable.

B. Precast Sections:
    a. Precast section with bases shall be installed in accordance with the applicable specifications or as shown on drawings.
    b. Pipe openings shall be aligned to that of the pipe entering and leaving the manhole, etc. Pipe shall be properly aligned with connections to manholes, etc. as shown on the drawings.
    c. Cast-In-Place sections shall be as shown on the drawings and in accordance with the concrete specifications.
    d. Form bottom of excavation clean and smooth to correct elevation.
    e. Form and place cast-in-place concrete base pad, with provision for storm sewer pipe to be placed at proper elevation.
    f. Form and place cast-in-place concrete walls, sleeved at proper elevation to receive storm sewer pipe in accordance with details shown on Drawings.
    g. Invert channels shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer section. Invert channels and structure bottoms shall be shaped with cement mortar. Changes in size and grade of invert shall be made gradually and evenly. Changes in direction of the sewer entering branch or branches shall have a true curve of as large a radius as the manhole will permit.

C. Frames and Covers:
    a. Frames and covers shall be set to the proper elevation. The frames shall be firmly embedded in mortar approximately 1 inch thick and aligned to fit the top section of the structure.

    b. Adjustment rings used to make adjustments in grade shall be made with the initial ring embedded in mortar and the exterior of the rings parged with mortar not less than 1/2 inch thick. No adjustment made in this manner shall exceed 8 inches.
    c. Concrete cradles shall be constructed as shown on the drawings and as needed when crossing over and under sewer pipe or utility lines. Concrete shall be 3000 psi mix with a minimum thickness of 6 inches.

3.5 INSPECTION AND TESTING

A. General:
   2. Storm sewer systems and culverts, upon completion or at such time as directed, shall be cleaned, inspected and tested. The system or culvert shall have a true grade and line. Actual elevations shall be within 0.10 feet of the elevations given on the drawings.
   3. After completion of the Work, or any part thereof, the job shall be inspected to determine that it has been installed in accordance with the drawings and specifications. In general, the Work shall prove to be in good condition, installed in accordance with the drawings and specifications and ready for use.

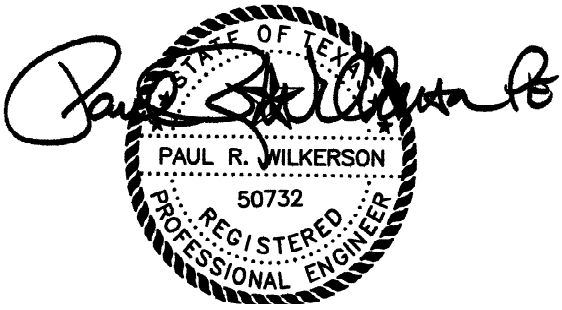
B. Cleaning and Testing:
   a. Visibly inspect and remove all debris and obstructions from storm pipe.
   b. Test for infiltration and exfiltration as recommended by the manufacturer or as approved by the Engineer.

C. Alignment Test:
   a. After backfill has been placed and compacted to a depth not less than one foot above top of pipe, a visual inspection shall be made by flashing a light between manholes. Any displacement or misalignment of invert shall be corrected.

END OF SECTION

ELECTRICAL & FIRE ALARM
SPECIFICATIONS
SAISD Athletic Fields Project

SECTION	TITLE
26 00 00	GENERAL PROVISIONS FOR ELECTRICAL
26 00 10	SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
26 05 10	BUILDING WIRE AND CABLE
26 05 26	GROUNDING AND BONDING
26 05 29	SUPPORTING DEVICES
26 05 33	CONDUIT
26 05 34	BOXES
26 05 53	ELECTRICAL IDENTIFICATION
26 24 00	PANELBOARDS
26 53 00	EXTERIOR LIGHTING
26 56 13	POLES AND STANDARDS



March 2, 2026

Paul Wilkerson, PE Texas # 50732
Power Systems
Firm #F-6257

SECTION 26 00 00 GENERAL PROVISIONS FOR ELECTRICAL

1 PART 1 GENERAL 1
1.1 SPECIAL NOTE 1
1.2 CHECKING DOCUMENTS 1
1.3 QUALITY ASSURANCE: 1
1.4 LAWS, CODES AND ORDINANCES 2
1.5 TERMINOLOGY 2
1.6 ENGINEER'S STATUS DURING CONSTRUCTION: 3
1.7 GENERAL 3
1.8 DIMENSIONS 6
1.9 INSPECTION OF SITE 6
1.10 ELECTRICAL WIRING 7
1.11 MOTORS AND CONTROLS 7
1.12 TESTING 7
1.13 PAINTING 8
1.14 SEALING AROUND PIPES, CONDUITS, DUCTS, ETC. 8
1.15 GENERAL 8
1.16 SUBMITTALS 9
2 PART 2 PRODUCTS 9
3 PART 3 EXECUTION 10
3.1 OPENINGS AND SLEEVES IN CONSTRUCTION 10
3.2 PROTECTING SITE 10
3.3 MECHANICAL-ELECTRICAL COORDINATION 10
3.4 MOUNTING HEIGHTS TO COMPLY WITH ADA REGULATIONS 11
3.5 STRUCTURAL CONDITIONS 11
3.6 OWNER INSTRUCTIONS 11
3.7 FINAL INSPECTION 11
3.8 PROJECT CLOSEOUT 12

1 PART 1 GENERAL

1.1 SPECIAL NOTE

A. The Architectural and Structural Plans and Specifications, including the supplements issued thereto, Information to Bidders, and other pertinent documents issued by the Owner, are a part of these specifications and the accompanying mechanical and electrical plans, and shall be complied with in every respect. All the above is included herewith, will be issued separately or is on file at the Owner's office, and shall be examined by all bidders. Failure to comply shall not relieve the Contractor of responsibility or be used as a basis for additional compensation due to omission of drawings. Where the Supplementary General Conditions conflict with the General Conditions, the Supplementary General Conditions shall govern.

B. All work covered by this division of the specifications shall be accomplished in accordance with all applicable provisions of the contract documents and any addenda or directive which may be issued.

1.2 CHECKING DOCUMENTS

A. The drawings and the specifications are numbered consecutively. The Contractor shall check the drawings and specifications thoroughly and shall notify the Owner of any discrepancies or omissions of sheets or pages. Upon notification, the Owner will promptly provide the Contractor with any missing portions of the drawings or specifications. No discrepancies or omissions of sheets or pages of the contract documents will relieve the Contractor of his duty to provide all work required by the complete contract documents.

1.3 QUALITY ASSURANCE:

A. All plumbing work shall be in accordance with the requirements of the International Plumbing Code, 2021 Edition.

B. All mechanical work shall be in accordance with the requirements of the International Mechanical Code, 2021 Edition.

C. All electrical work shall be in accordance with the requirements of the National Electrical Code, 2020 Edition.

D. Buy American Act: Only domestic construction materials will be used by the Contractor, Subcontractors, materialmen, and suppliers in the performance of this contract.

E. Products Criteria:

1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products for at least 3 years. See other specification sections for any exceptions.

2. Equipment Service: Products shall be supported by a service organization which maintains an adequate inventory of repair parts and is located within a one hundred mile radius of the site.

3. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.

4. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume, complete responsibility for the final assembled product.

5. Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.

F. Manufacturer's Recommendations: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished to the Architect prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

1.4 LAWS, CODES AND ORDINANCES

A. All work shall be executed in strict accordance with all local, state and national codes, ordinances and regulations governing the particular class of work involved, as interpreted by the inspecting authority. The Contractor shall be responsible for the final execution of the work under this heading to suit those requirements. Where these specifications and the accompanying drawings conflict with these requirements, the Contractor shall report the matter to the Owner, shall prepare any supplemental drawings required illustrating how the work may be installed so as to comply and, on approval, make the changes at no cost to the Owner. On completion of the various portions of the work the installation shall be tested by the constituted authorities, approved and, on completion of the work, the Contractor shall obtain and deliver to the Owner a final certificate of acceptance.

1.5 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install," "provide and install", and/or similar phrases occur, it is the intent that the

materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" always refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. "Concealed" areas are those areas which cannot be seen by the building occupants from the floor with all building components in place.

G. "Exposed" areas are all areas which are exposed to view by the building occupants including mechanical rooms.

H. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

1.6 ENGINEER'S STATUS DURING CONSTRUCTION:

A. The work, from its commencement to its completion, shall be under the exclusive charge and control of the Contractor, and all risks in connection therewith shall be borne by the Contractor.

B. The Engineer's efforts during periodic site visits will be directed toward assisting the Architect in providing assurance for the Owner that the completed project will conform to the requirements of the contract documents, but the Engineers will not be responsible for the Contractor's failure to perform the work in accordance with contract documents.

C. The Engineer will make recommendations to the Architect regarding disapproval or rejection of work which, in his opinion, is defective, i.e.; is unsatisfactory, faulty or defective, or does not conform to the requirements of the contract documents. Failure on the part of the Engineer to recommend disapproval of or rejection of work, methods, or acts or omissions of any kind shall never at any time be deemed to constitute acceptance or approval of the same.

1.7 GENERAL

A. In general, the lines and ducts to be installed by the various trades under these specifications shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform

to the generally accepted standards as to complete the work in a neat and satisfactorily workable manner. The following is a general outline concerning the running of various lines and ducts and is to be excepted where the drawings or conditions at the building necessitate deviating from these standards.

B. All piping, conduit and ductwork for the mechanical and electrical trades shall be concealed in chases in finished areas, except as indicated on the drawings. Horizontal lines run in areas that have ceilings shall be run concealed in those ceilings, unless otherwise specifically indicated or directed.

C. Piping, ductwork, conduits and raceways may be run exposed in machinery and equipment spaces, where serving as connections to motors and equipment items in finished rooms where exposed connections are required, and elsewhere as indicated on the drawings or required.

D. All conduits in any space where they are exposed shall run parallel with the building walls. They shall enter the concealed areas perpendicular with the walls, ceilings or floors. Fittings shall be used where necessary to comply with this requirement.

E. The Contractor shall thoroughly acquaint himself with the details of the construction and finishes before submitting his bid as no allowances will be made because of the Contractor's unfamiliarity with these details. Place all inserts in masonry walls while they are under construction. All concealed lines shall be installed as required by the pace of the general construction to precede that general construction.

F. The mechanical and electrical plans do not give exact details as to elevations of lines and ducts, exact location, etc., and do not show all the offsets, control lines, pilot lines and other installation details. The Contractor shall carefully lay out his work at the site to conform to the architectural and structural conditions, to provide proper grading of lines, to avoid all obstruction, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide an integrated, satisfactorily operating installation. Each Contractor shall verify that each item of mechanical equipment, each electrical panel, light fixture, and device, each grille or ceiling outlet, and each other item of work furnished by him shall fit into the available space before ordering same. Any required changes due to the Contractor's failure to verify that each item of his equipment will fit into the available space shall be made by the Contractor furnishing the equipment, all at no additional cost to the Owner.

G. The routing of piping, ductwork, conduits, etc., indicated on the drawings is approximate and where light fixtures or other items of work are to be recessed in ceiling, piping, ductwork, conduits, etc., shall be routed around the light fixtures or other items of work where there is not sufficient space for same to be routed above such item of work with the

recessed item properly installed. Any required changes due to the Contractor's failure to properly coordinate his work with recessed items shall be made by the Contractor installing such piping, ductwork, conduits, etc., all at no additional cost to the Owner.

H. The electrical plans show diagrammatically the locations of the various electrical outlets and apparatus and the method of circuiting and controlling them. Exact locations of these outlets and apparatus shall be determined by reference to the general plans and to all detail drawings, equipment drawings, roughing-in drawings, etc., by measurements at the building, and in cooperation with other sections, and in all cases shall be subject to the approval of the Owner. The Owner reserves the right to make any reasonable change in location of any outlet or apparatus before installation (within 10 feet of location shown on drawings) or after installation if an obvious conflict exists, without additional cost to the Owner.

I. The Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these specifications and plans, which shall be checked by the Owner before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

J. Order of precedence shall be observed in laying out the pipe, ductwork, material, and conduit in order to fit the material into the space above the ceiling and in the chases and walls. The following order shall govern:

1. Items affecting the visual appearance of the inside of the building such as lighting fixtures, diffusers, grilles, outlets, panelboards, etc. Coordinate all items to avoid conflicts at the site.

2. Large ducts and pipes with critical clearances.

3. Conduit, water lines, and other lines whose routing is not critical and whose function would not be impaired by bends and offsets.

K. Piping, ducts, and conduits serving outlets on items of equipment shall be run in the most appropriate manner. Where the equipment has built-in chases, the lines shall be contained therein. Where the equipment is of the open type, the lines shall be run as close as possible to the underside of the top and in a neat and inconspicuous manner. All piping, ductwork, conduits and all other items of work supported from the structure above shall be installed as high as physically possible (not just as convenient) considering all work required to be installed in the available space. If any such work is installed lower than it could have been installed, the Contractor shall furnish all labor, equipment, and materials to remove same and reinstall the work as high as possible, all at no additional cost to the Owner.

L. Adequate provisions shall be provided for the replacement of all filters.

M. In addition to insulation called for elsewhere in the specifications, all piping and equipment subject to condensation and/or whose normal operating surface temperature is below 70 degrees F or above 110 degrees F shall be insulated. All piping subject to condensation and/or whose operating temperature is below 70 degrees F shall be insulated same as specified elsewhere in the specifications for chilled water or refrigerant suction line piping. All piping with operating surface temperature above 110 degrees F shall be insulated same as specified elsewhere in the specifications for domestic hot water or steam piping. All insulation shall be provided by the particular Contractor who installs the particular equipment or piping system. All equipment shall be insulated and finished in a manner suitable for the conditions and as approved by the Engineers. Armaflex insulations shall not be permitted in breathing air spaces.

N. Exceptions and inconsistencies in plans and specifications shall be brought to the Owner's attention before the contract is signed. Otherwise, the Contractor shall be responsible for any and all changes and additions that may be necessary to accommodate his particular apparatus, material, or equipment.

O. The Contractor shall distinctly understand that the work described herein and shown on the accompanying drawings shall result in a finished and working job, and any item required to accomplish this intent shall be included whether specifically mentioned or not.

P. Each bidder shall examine the plans and specifications for the General Construction. If these documents show any item requiring work under Division 22, 23 or 26 and that work is not indicated on the respective "M", "P" or "E" drawings, he shall notify the Owner in sufficient time to clarify before bidding. If no notification is received, the Contractor is assumed to require no clarification, and shall install the work as indicated on the General Plans in accordance with the specifications.

1.8 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings. Any difference which may be found shall be submitted to the Owner for consideration before proceeding with the work.

1.9 INSPECTION OF SITE

A. The accompanying plans do not indicate completely the existing mechanical and electrical installations. The bidders for the work under these sections of the specifications shall inspect the existing installations and thoroughly acquaint themselves with conditions to met and the work to be accomplished in removing and codifying the existing work, and in

installing the new work in the present building and underground serving to and from that structure. Failure to comply with this shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.

1.10 ELECTRICAL WIRING

A. All electric wiring of every character, both for power supply, for pilot and control, for temperature control, for communications, etc. will be done under Division 26 of these specifications. The Contractor for each section shall erect all his motors in place ready for connections. The Contractor, under Division 26, shall mount all the starters and controls, furnishing the supporting structures and any required outlet boxes.

B. Every electrical current consuming device furnished as a part of this project, or furnished by the Owner and installed in this project, shall be completely wired up under Division 26. Verification of exact location, method of connection, number and size of wires required, voltage requirements, and phase requirements is the responsibility of the Contractor under Division 26. If conflicts occur between the drawings and the actual requirements, actual requirements shall govern.

1.11 MOTORS AND CONTROLS

A. All motors furnished under any of the several sections of these specifications shall be of recognized manufacture, of adequate capacity for the loads involved and wound for the current characteristics shown on the electrical drawings. All motors shall conform to the standards of manufacture and performance of the National Electrical Manufacturer's Association as shown in their latest publications. They shall further be listed by Underwriters Laboratories.

B. Unless otherwise noted, the Contractor under Division 16 shall furnish each motor with a starter and all controls of the types specified or required. The starters shall be of the totally enclosed type, of capacity rating within the required limits of the motors which they are to serve, shall be suitable for the motor current characteristics and shall provide thermal overload protection. All starters shall be of standard manufacture and performance as defined by the National Electrical Manufacturers' Association. They further shall be listed by Underwriters Laboratories. Provide overload protection in each phase wire.

C. All motors larger than 1/3 horsepower shall be of a type that the power consumed is in approximate direct proportion to the load on the motor. At 50% of rated brake horsepower, the power consumed shall be approximately 50% of the power consumed at full load.

1.12 TESTING

A. The Contractor under each division shall at his own expense perform the various tests as specified and required by the Owner and as required by the State and local authorities. The Contractor shall furnish all fuel and materials necessary for making test.

1.13 PAINTING

A. Painting for Divisions 22, 23 and 26 shall be as follows:

1. If the factory finish on any apparatus or equipment is marred, it shall be touched up and then given one coat of half-flat-half-enamel, followed by a coat of machinery enamel of a color to match the original. Paint factory prime surfaces.

1.14 SEALING AROUND PIPES, CONDUITS, DUCTS, ETC.

A. The Contractor installing pipes, conduits, ducts, etc. shall seal all spaces between pipes and/or sleeves where they pierce walls, partitions or floors with Dow Corning No. 2000 fire resistant caulk. The packing shall effect a complete fire and/or air seal where pipes, conduits, ducts, etc., pierce walls, floors or partitions.

1.15 GENERAL

A. The contractor shall provide all labor, equipment, materials, etc. and shall perform all operations in connection with the installation of electrical work in accordance with these contract documents.

B. The contractor shall execute all work specified or indicated on accompanying drawings. Contractor shall provide all equipment necessary and usually furnished in connection with such work and systems, whether or not specifically mentioned.

C. Every contractor shall be responsible for all his work fitting into place in a satisfactory and neat workmanlike manner in every particular to the approval of the owner.

D. Confer with the general contractor and other contractors regarding the location and size of pipes, equipment, fixtures, conduit, ducts, openings, switches, outlets, etc., that there be no interferences between the installation or progress of the work of any contractor on the project.

E. The electrical drawings are diagrammatic and shall be followed as closely as actual construction of the building and the work of other trades will allow. All changes from drawings necessary to make the work of each contractor conform to the building construction and the work of other trades shall be done at the appropriate contractor's expense.

F. Should any bidder consider that any requirement of these specifications and drawings will make the effective operation of any portion or the whole installation impossible, or if he feels a vital component has been omitted, he must describe in his bid changes he deems necessary. Failure to do so shall be considered as an agreement on the part of the bidder to guarantee the effective operation of the installation.

G. All equipment shall be installed complete with all necessary fittings, supports, accessories, etc., as necessary for a complete installation, providing the desired function. All equipment shall be installed in accordance with manufacturer's recommended procedure unless specifically stated otherwise.

H. Nothing in these specifications or drawings shall be construed as directing any contractor from deviating from any legally binding code or ordinance.

1.16 SUBMITTALS

A. Sequence: The contractor is required to submit four copies of the following types of information:

1. Prior to ordering equipment: shop drawings/ component data.

2. At the end of the project before final inspection: maintenance manuals, warranties, certificate of owner's instruction and a certificate of receipt of loose items.

B. Maintenance manuals shall include shop drawings, wiring diagrams, operating instructions, lubrication instructions, maintenance instructions, parts lists, and test reports.

2 PART 2 PRODUCTS

A. PRODUCT LISTING

1. When two or more items of same material or equipment are required, they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials, wire, conduit, fittings, sheet metal, steel bar stock, welding rods, solder, fasteners, motors for dissimilar equipment units, and similar items used in work, except where indicated otherwise.
2. Provide products which are compatible within systems and other connected items.

B. NAMEPLATE DATA

1. Provide permanent operational data nameplate on each item of power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, operating and power

characteristics, labels of tested compliances, and similar essential data. Locate nameplates in an accessible location.

3 PART 3 EXECUTION

3.1 OPENINGS AND SLEEVES IN CONSTRUCTION

A. Most openings required in wall, floor, roof, ceiling, etc., construction for electrical work will be provided by the general contractor in accordance with information furnished by the electrical contractor. All sleeves, inserts, forms, etc., required for openings shall be furnished by the contractor requiring same. The electrical contractor shall be responsible for their size, fabrication and location. Where new work has been installed previous to this request, the general contractor will do the necessary cutting and patching at the expense of the electrical contractor.

3.2 PROTECTING SITE

A. Provide adequate barricades, signs, torches, etc. as required during progress of the work. Observe all applicable regulations respecting safety provisions.

B. Protect utilities, trees, shrubbery, fences, poles, sidewalks, curbs and all other property and surface structures from damage. Any items which are damaged shall be restored by the contractor at his own expense.

3.3 MECHANICAL-ELECTRICAL COORDINATION

A. Unless otherwise specified the electrical contractor will furnish and install all conduit, wiring, disconnects, starter, overloads, holding coils, remote pushbutton stations, control switches, and pilot lights for all electrically operated mechanical equipment, including final connections.

B. The mechanical contractor shall provide and connect wiring for all control devices such as thermostats, pressure sensors, humidistats, etc., associated with the mechanical equipment, and shall install those items which due to their method of operation must be connected or integrated into the equipment. Items not attached to mechanical equipment, conduit, duct or piping shall be installed by the electrical contractor. All wiring for mechanical control shall be provided and installed by the mechanical contractor. The mechanical contractor is responsible for coordinating his requirements with the electrical contractor. Control diagrams shall be provided by the mechanical contractor.

C. Each contractor shall consult with the electrical contractor before ordering or installing electrical equipment and shall be responsible to insure the equipment installed is of proper size and type.

D. After wiring is completed by the electrical contractor, each mechanical contractor shall inspect the appropriate wiring before motors are

operated. If any discrepancies are discovered, the mechanical contractor shall notify the owner in writing. The owner shall arrange to have changes made as required.

3.4 MOUNTING HEIGHTS TO COMPLY WITH ADA REGULATIONS

A. Install all electrical components regulated by ADA regulations at heights required in areas of the building which comply with ADA regulations. Coordinate the height of any component not listed below.

B. Electrical Components:
1. Light Switches: 48" max. (measured to top of box).
2. Receptacles and Telephone Jacks: 18" min. (measured from floor to center of box).
3. Thermostats: 48" max. (measured from floor to top of box).
4. Audio/Visual Warning Devices: 80" max. (measured from floor to center of device).

3.5 STRUCTURAL CONDITIONS

A. These specifications and the drawings accompanying same are intended to cover an installation which will not interfere with the structural design of the building, which will fit into the several available spaces, and which will insure a complete and satisfactory mechanical and electrical system.

B. Each bidder shall carefully examine the plans for all branches of the work and shall be responsible for the proper fitting of his material and apparatus into the building.

C. Should the particular equipment which any bidder proposes to install require other space conditions than those shown on the drawings, he shall arrange for such space with the Architect before submitting his bid. Should changes become necessary on account of failure to comply with this clause, the Contractor shall make such necessary changes at his (the Contractor's) own expense.

3.6 OWNER INSTRUCTIONS

A. Each contractor shall instruct the owner's representative in the operation and maintenance of each system. Instruction periods shall be at the convenience of the owner. Submit a letter signed by the owner certifying satisfactory completion of instructional activities.

3.7 FINAL INSPECTION

A. Final inspection will be made only after the contractor certifies in writing that the work is 100% complete.

B. A representative from each contractor and sub-contractor shall be present and be prepared to assist the owner in performing the inspection.

C. A report describing incomplete or unacceptable work will be reviewed with the contractor. The contractor shall then certify to the owner in writing that such unacceptable or incomplete work is 100% corrected.

3.8 PROJECT CLOSEOUT

A. Before final application for payment will be accepted, contractor must complete the following requirements:

1. Final inspection performed and all corrections made.

2. Submittal of maintenance manuals, certificate of owner instruction, equipment warranties and receipt for loose items.

END OF SECTION

SECTION 26 00 10 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1 PART 1 - GENERAL 1
1.1 DESCRIPTION 1
1.2 SUBMITTALS 1
1.3 GENERAL 1
1.4 SHOP DRAWINGS 1
1.5 PRODUCT DATA 1
1.6 CONTRACTORIS RESPONSIBILITIES 2
1.7 SUBMISSION REQUIREMENTS 3
1.8 RESUBMISSION REQUIREMENTS 5
1.9 DISTRIBUTION OF SUBMITTALS AFTER REVIEW 5
1.10 ARCHITECT'S / ENGINEER"S RESPONSIBILITIES 5

1 PART 1 - GENERAL

1.1 DESCRIPTION – Documents to be submitted for approval before construction

1.2 SUBMITTALS

A. Shop and Installation Drawings, Product Data and Samples as required.

B. Prepare and submit, with construction schedule, a separate schedule listing dates when shop drawings, product data and any requested samples will be needed for each product.

1.3 GENERAL

A. Requests for material substitutions must be received and approved prior to submission of shop drawings, said submittals and/or samples; reviewed by architect or engineer does not constitute acceptance of materials other than those originally specified.

1.4 SHOP DRAWINGS

A. Original drawings, which illustrate portion of the work: Showing equipment, layout, setting or installation details. Deviation from Contract Drawings shall be marked in RED with an explanation of reason for change

B. Prepared by a qualified detailer.

C. Identify details by reference to sheet and detail number shown on contract drawings.

D. Reference specification section and paragraph number(s) represented on the submitted drawings.

E. Minimum Sheet Size: 8½" x 11".

1.5 PRODUCT DATA

A. Manufacturer's standard schematic drawings:

1. Modify drawings to delete information which is not applicable to project.

2. Supplement standard information to provide additional information applicable to project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.

1. Clearly mark each copy to identify pertinent materials, products or models.

2. Show dimensions and clearance required.

3. Shop performance characteristics and capacities.

4. Show wiring diagrams and controls.

C. Complete catalogs will not be acceptable. Manufacturer's regular catalog sheets will be acceptable if they completely indicate specification requirements. When manufacturer's catalog sheets are submitted, completely line out material not directly connected with subject.

1. Assemble in indexed brochure, catalog sheets of submittals containing more than five (5) different items or equipment.

D. Reference specification section and paragraph number represented on data submitted.

1.6 CONTRACTORIS RESPONSIBILITIES

A. Review shop drawings, product data and samples prior to submission and certify with signature of reviewer

B. Verify:

1. Field measurements.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Quantities

C. Coordinate each submittal with requirements of work and of contract documents.

D. Contractor's responsibility for errors, omissions and deviations in submittals from requirements of contractor documents is not relieved by architect's review of submittals, unless architect gives written acceptance of specific deviations.

1. Notify architect in writing of deviations at the time of submittal.

E. Begin no work which requires submittals until return of submittals with architect's stamp and initials or signature indicating review.

F. After architect's / engineer's review, distribute copies.

1.7 SUBMISSION REQUIREMENTS

A. Schedule submissions at least 15 days before dates reviewed submittals will be needed.

B. Submit a minimum of 5 copies of all submittals.

C. Accompany submittals with transmittal in duplicate, containing:

1. Date.

2. Project title and number.

3. Contractor's name and address.

4. The number of each shop drawings, product data and samples submitted.

5. Notification of deviations from contract documents.

6. Other pertinent data.

D. Submittals shall include:

1. Date and revision date.

2. Project title and number.

3. The names of:

a. Architect.

b. Contractor.

c. Subcontractor.

d. Supplier.

e. Manufacturer.

f. Separate detailer when pertinent.

4. Identification of product or material.

5. Relation to adjacent structure or materials.

6. Field dimensions, clearly identified as such.

7. Specification section number.

8. Applicable standards, such as ASTM or Federal Specifications numbers.

9. A blank space, 3" x 3" for the architect's stamp.

10. Identification of deviations from contract documents in red ink include justification for deviation.

11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with contract documents.

Failure to comply with the above requirements shall be grounds for rejection of submittal.

1.8 RESUBMISSION REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.

2. Indicate on drawings any changes which have been made other than those requested by architect.

3. Product Data and Samples: Submit new data and samples as required for initial submittal.

1.9 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute copies of Shop Drawings and Product Data which carry architect's stamp to:

1. Contractor's file.

2. Job-site file.

3. Record document's file.

4. Other prime contractors.

5. Subcontractor.

6. Supplier.

7. Fabricator.

B. Distribute samples as directed.

1.10 ARCHITECT'S / ENGINEER"S RESPONSIBILITIES

A. Review submittals with reasonable promptness.

B. Review for:

1. Design concept of project.

2. Information given in contract documents.

3. Architect or Engineer is not responsible for verification of quantities.

C. Review of separate items does not constitute review of an assembly in which item functions.

D. Affix stamp and initials or signature certifying the review of submittals.

E. Return submittals to contractor for distribution.

END OF SECTION

SECTION 26 05 10 BUILDING WIRE AND CABLE

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 RELATED SECTIONS 1
1.3 REFERENCES 1
1.4 QUALIFICATIONS 1
1.5 REGULATORY REQUIREMENTS 2
1.6 PROJECT CONDITIONS 2
1.7 COORDINATION 2
2 PART 2 PRODUCTS 2
2.1 BUILDING WIRE 2
2.2 NONMETALLIC-SHEATHED CABLE 2
2.3 DIRECT BURIAL CABLE 2
2.4 SERVICE ENTRANCE CABLE 3
2.5 ARMORED CABLE 3
2.6 METAL CLAD CABLE 3
2.7 INTERCOM/SPEAKER CABLE 3
2.8 TELEPHONE CABLE 3
2.9 COMPUTER CABLE 4
2.10 TELEVISION CABLE 4
3 PART 3 EXECUTION 6
3.1 EXAMINATION 6
3.2 PREPARATION 6
3.3 WIRING METHODS 6
3.4 INSTALLATION 6
3.5 FIELD QUALITY CONTROL 8

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Building wire and cable.

B. Nonmetallic-sheathed cable.

C. Direct burial cable.

D. Service entrance cable.

E. Armored cable.

F. Metal clad cable.

G. Intercom/Speaker cable.

H. Telephone cable.

I. Computer cable

J. Television cable

K. Wiring connectors and connections.

1.2 RELATED SECTIONS

A. Section 26 05 53 - Electrical Identification.

B. Section 27 20 00 - Communications and Computer Systems.

1.3 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association).

B. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. NFPA 70 - National Electrical Code, Governing Edition.

D. TIA/EIA Standards 568, 568-A, 569, 570, 606, 607

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years experience.

1.5 REGULATORY REQUIREMENTS

A. Conform to NFPA 70, Governing or Latest Edition as applicable.

B. Furnish products listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.6 PROJECT CONDITIONS

A. Verify that field measurements are as indicated.

B. Conductor sizes are based on copper

C. Wire and cable routing indicated is approximate unless dimensioned.

1.7 COORDINATION

A. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

2 PART 2 PRODUCTS

2.1 BUILDING WIRE

A. Description: Single conductor insulated stranded wire.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: NFPA 70, Type THHN/THWN.

2.2 NONMETALLIC-SHEATHED CABLE

A. Description: NFPA 70, Type NMC.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

2.3 DIRECT BURIAL CABLE

A. Description: NFPA 70, Type UF.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation Temperature Rating: 90 degrees C.

E. Use only if specifically permitted on drawing sheets.

F. Underground Warning Tape: 4-inch wide plastic tape, colored red with suitable warning legend describing buried electrical lines.

2.4 SERVICE ENTRANCE CABLE

A. Description: NFPA 70, Type SE or USE.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: Type RHH or XHHW or THHN.

2.5 ARMORED CABLE

A. Not allowed on this project.

2.6 METAL CLAD CABLE

A. Not allowed on this project.

2.7 INTERCOM/SPEAKER CABLE

A. Description: UL Listed Type CL2.

B. Conductor: Copper.

C. Insulation Voltage Rating: 300 volts.

D. Temperature Range: -20 deg C to 105 deg C.

E. Insulation Material: PVC.

F. Size: 22 gauge, single pair.

G. Aluminum Foil Shield.

H. Raceway: Not required.

2.8 TELEPHONE CABLE

A. Description: Belden type 9566 or equal or CAT-3 or equal.

B. Conductor: Copper.

C. Insulation Voltage Rating: 300 volts.

D. Insulation material: PVC.

E. Size 24 gauge, 3 pair minimum.

F. Unshielded

G. Raceway: Refer to drawings for conduit requirements.

2.9 COMPUTER CABLE (SECTION 27 20 00 HAS PRECEDENCE) (N/A)

A. Description: EIA/TIA 568 Belden type 1583A or equal, non-plenum rated. Provide CAT-6 or as noted on the drawings. Verify category of cable before bidding on the project.

B. Conductor: Copper.

C. Insulation Rating: 300 volts.

D. Insulation Material: PVC, blue.

E. Size: 24 gauge, 4 pair twisted.

F. The Owner's Representative will install all computer cabling and terminations, UNLESS OTHERWISE NOTED in Specifications Section 16780 or on the drawings.

G. Unshielded.

H. Raceway: Refer to drawings for conduit requirements.

I. Termination: At work area, terminate each 4 pair cable in an eight pin, modular jack. Connectors to be 100-ohm UTP outlets.

2.10 TELEVISION CABLE (SECTION 27 20 00 HAS PRECEDENCE) (N/A)

A. Description: 75 ohm coaxial cable, Belden type 9104 or equal, RG-59.

B. Conductor: Copper.

C. Insulation: Gas Injected.

D. Jacket: PVC, black.

E. Size: 18 gauge

F. Shielded.

G. Raceway: Not required.

2.11 SECURITY SYSTEM CABLING (SECTION 27 20 00 HAS PRECEDENCE) (N/A)

A. ALARM
1. Door Contact: 22 ga. / 2 pair Belden
2. Motion Detector: 22 ga. / 4 pair Belden
3. Glass Break Detector: 22 ga. / 4 pair Belden
4. Keypad: 22 ga. / 4 pair or 18 ga. / 4 pair for longer runs Belden. Must be Fire Wire if any fire is involved.
5. Zone Expander: 22 ga. / 4 pair Belden
6. Wireless Expander: 22 ga. / 4 pair Belden
7. Siren: 22 ga. / 2 pair Belden, must be Fire Wire if any fire is involved.
8. A/C Power: 22 ga. / 4 pair Belden, must be Fire Wire if any fire is involved.

B. ACCESS CONTROL
1. Mag Lock: 18 ga. / 2 pair
2. Door Strike: 18 ga. / 2 pair
3. Contact: 22 ga. / 2 pair
4. Reader: CAT-5e or 22 ga. / 6 pair
5. Request to Exit Button: 22 ga. / 4 pair
6. Request to Exit Motion: 22 ga. / 4 pair
7. Kantech KT-300 Link to other KT-300 panels: CAT-5e
8. Touch Crash Exit Bar: 22 ga. / 4 pair

C. CCTV
1. Camera – Analog: RG-59 Coax paired with 18 ga. / 2 pair Siamese wire
2. Camera – IP: CAT-6
3. Camera Power: 18 ga. / 2 pair
4. Other Monitors: RG-59 Coax or RG-6 Coax
5. Microphones: 18 ga. / 2 pair shielded with ground

D. STRUCTURED CABLE
1. Ethernet: CAT-6
2. Telephone: CAT-6
3. CATV: RG-6 Coax

E. Conductor: Copper.

F. Jacket: PVC, Color as determined by Owner.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that mechanical work likely to damage wire and cable has been completed.

C. Verify that raceway installation is complete and supported.

3.2 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.3 WIRING METHODS

A. Concealed Dry Interior Locations: Use only building wire, THHN insulation, in raceway.

B. Exposed Dry Interior Locations: Use only building wire, Type THHN insulation, in raceway.

C. Wet or Damp Interior Locations: Use only building wire, Type THWN insulation, in raceway.

D. Exterior Locations: Use only building wire, Type THWN insulation, in raceway.

E. Underground Installations: Use only building wire, Type THWN insulation, in raceway.

F. Use wiring methods indicated.

3.4 INSTALLATION

A. Route wire and cable as required to meet Project Conditions.

B. Install cable in accordance with the NECA "Standard of Installation."

C. Use stranded conductor for all feeders and branch circuits.

D. Use stranded conductors for control circuits.

E. Use conductor not smaller than 12 AWG for power and lighting circuits.

F. Use conductor not smaller than 16 AWG for control circuits.

G. Increase wire size by one wire size for branch circuits that are longer than 75 feet.

H. Increase wire size by two wire sizes for branch circuits that are longer than 200 feet.

I. Pull all conductors into raceway at same time.

J. Use suitable wire pulling lubricant for building wire 4 AWG and larger.

K. Protect exposed cable from damage.

L. Support cables above accessible ceiling, using spring metal clips. Do not rest cable on ceiling panels.

M. Use suitable cable fittings and connectors.

N. Neatly train and lace wiring inside boxes, equipment, and panelboards. Provide cable ties every 12 inches minimum to keep wiring neatly trained.

O. Clean conductor surfaces before installing lugs and connectors.

P. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

Q. Use wedget connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

R. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

S. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

T. Trench and backfill for direct burial cable installation. Install warning tape along entire length of direct burial cable, within 6 inches of grade.

U. Identify and color code wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation.

V. Seal all penetrations of fire rated walls.

W. All Computer Cabling drops shall be 295 feet or less, color-coded according to TIA/EIA 568, Section 10.2.1.1.3 and shall have no bends tighter than 6 times the OD of cable.

X. TV terminations to be mounted in a standard cable face plate at height noted on the drawings. Provide 120- volt receptacle within 12 inches of face plate at same height.

3.5 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

C. Computer cable shall meet requirements of TIA/EIA 568-A. Any cables failing test shall be replaced at contractor's expense.

END OF SECTION

SECTION 26 05 26 GROUNDING AND BONDING

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 REFERENCES 1
1.3 GROUNDING SYSTEM DESCRIPTION 1
1.4 PERFORMANCE REQUIREMENTS 1
1.5 SUBMITTALS FOR CLOSEOUT 1
1.6 REGULATORY REQUIREMENTS 1
2 PART 2 PRODUCTS 1
2.1 ROD ELECTRODES 1
2.2 EXOTHERMIC CONNECTIONS 2
2.3 WIRE 2
3 PART 3 EXECUTION 2
3.1 EXAMINATION 2
3.2 INSTALLATION 2
3.3 FIELD QUALITY CONTROL 3

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Grounding electrodes and conductors.

B. Equipment grounding conductors.

C. Bonding.

1.2 REFERENCES

A. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association).

B. NFPA 70 - National Electrical Code.

1.3 GROUNDING SYSTEM DESCRIPTION

A. Metal underground water pipe.

B. Metal frame of the building.

C. Rod electrodes.

1.4 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 10 ohms.

1.5 SUBMITTALS FOR CLOSEOUT

A. Project Record Documents: Record actual grounding system resistance of components and grounding electrodes.

1.6 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

2 PART 2 PRODUCTS

2.1 ROD ELECTRODES

A. Material: Copper-clad steel.

B. Diameter: 3/4 inch.

C. Length: 10 feet.

2.2 EXOTHERMIC CONNECTIONS

A. Manufacturers:
1. Erico Cadweld.

2.3 WIRE

A. Material: Stranded copper.

B. Foundation Electrodes: 2/0 AWG.

C. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that final backfill and compaction has been completed before driving rods.

3.2 INSTALLATION

A. Install rod electrodes at service entrance and dry type transformers 25 KVA or larger. Install additional rod electrodes to a maximum of three (3) to achieve specified resistance to ground. Bond all electrodes together with #2 copper grounding conductor connected to service entrance grounding electrode.

B. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing.

C. Provide bonding to meet Regulatory Requirements.

D. Bond together metal siding not attached to grounded structure; bond to ground.

E. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

F. Isolated Grounding Conductor: From designated panel grounding bar, run isolated ground conductor continuously back to service entrance grounding electrode. Bond with exothermic weld.

3.3 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.13.

END OF SECTION

SECTION 26 05 29 SUPPORTING DEVICES

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 REFERENCES 1
1.3 REGULATORY REQUIREMENTS 1
2 PART 2 PRODUCTS 1
2.1 PRODUCT REQUIREMENTS 1
3 PART 3 EXECUTION 1
3.1 INSTALLATION 2

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Conduit and equipment supports.

B. Anchors and fasteners.

1.2 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association).

B. NFPA 70 - National Electrical Code.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

2 PART 2 PRODUCTS

2.1 PRODUCT REQUIREMENTS

A. Materials and Finishes: Corrosion resistant.

B. Select materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit, including weight of wire in conduit.

C. Anchors and Fasteners:
1. Concrete Structural Elements: Use expansion anchors and preset inserts.
2. Steel Structural Elements: Use beam clamps, spring steel clips, steel ramset fasteners, and welded fasteners.
3. Concrete Surfaces: Use self-drilling anchors and expansion anchors.
4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
5. Solid Masonry Walls: Use expansion anchors and preset inserts.
6. Sheet Metal: Use sheet metal screws.
7. Wood Elements: Use wood screws.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Locate and install anchors, fasteners, and supports in accordance with NECA "Standard of Installation".

1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.

2. Do not use powder-actuated anchors without permission from Owner.

3. Do not drill or cut structural members without permission from Owner.

B. Fabricate supports from structural steel or formed steel members. Rigidly weld members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

C. Install surface-mounted cabinets and panelboards with minimum of four anchors.

D. In wet and damp locations use galvanized steel channel supports to stand cabinets and panelboards 1 inch off wall.

E. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

SECTION 26 05 33 CONDUIT

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 RELATED SECTIONS 1
1.3 REFERENCES 1
1.4 DESIGN REQUIREMENTS 2
1.5 PROJECT RECORD DOCUMENTS 2
1.6 REGULATORY REQUIREMENTS 2
1.7 DELIVERY, STORAGE, AND HANDLING 2
1.8 PROJECT CONDITIONS 2
2 PART 2 PRODUCTS 2
2.1 CONDUIT REQUIREMENTS 2
2.2 METAL CONDUIT 3
2.3 PVC COATED METAL CONDUIT 3
2.4 FLEXIBLE METAL CONDUIT 4
2.5 LIQUIDTIGHT FLEXIBLE METAL CONDUIT 4
2.6 ELECTRICAL METALLIC TUBING (EMT) 4
2.7 NONMETALLIC CONDUIT 4
2.8 NONMETALLIC TUBING 4
3 PART 3 EXECUTION 5
3.1 INSTALLATION 5
3.2 INTERFACE WITH OTHER PRODUCTS 6

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal conduit.

B. Flexible metal conduit.

C. Liquidtight flexible metal conduit.

D. Electrical metallic tubing.

E. Nonmetal conduit.

F. Electrical nonmetallic tubing.

G. Flexible nonmetallic conduit.

H. Fittings and conduit bodies.

1.2 RELATED SECTIONS

A. Section 26 05 34 - Boxes.

B. Section 26 05 26 - Grounding and Bonding.

C. Section 26 05 29 - Supporting Devices.

D. Section 26 05 53 - Electrical Identification.

1.3 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.

C. ANSI C80.5 - Rigid Aluminum Conduit.

D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

E. ANSI/NFPA 70 - National Electrical Code.

F. NECA "Standard of Installation."

G. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

H. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

I. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.4 DESIGN REQUIREMENTS

A. Conduit Size: ANSI/NFPA 70.

1.5 PROJECT RECORD DOCUMENTS

A. Accurately record actual routing of conduits larger than 2 inches.

1.6 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

1.8 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

2 PART 2 PRODUCTS

2.1 CONDUIT REQUIREMENTS

A. Minimum Size: 3/4 inch unless otherwise specified.

B. Underground Installations:
   1. More than Five Feet from Foundation Wall: Use thickwall nonmetallic conduit.
   2. Within Five Feet from Foundation Wall: Use rigid steel conduit or intermediate metal conduit.
   3. In or Under Slab on Grade: Use rigid steel conduit, intermediate metal conduit, Schedule 40 PVC conduit.
   4. Minimum Size: 3/4 inch.

C. Outdoor Locations, Above Grade: Use rigid steel, or intermediate metal conduit.

D. In Slab Above Grade:
   1. Use rigid steel conduit, intermediate metal conduit, or Schedule 40 PVC conduit. No PVC conduit to extend above concrete.
   2. Maximum Size Conduit in Slab: 3/4 inch; 1/2 inch for conduits crossing each other.

E. Wet and Damp Locations: Use schedule 80 PVC conduit or PVC coated rigid conduit.

F. Dry Locations:
   1. Concealed: Use rigid steel, intermediate metal conduit or electrical metallic tubing throughout project.
   2. Exposed: Use rigid steel, intermediate metal conduit or electrical metallic tubing throughout project.

2.2 METAL CONDUIT

A. Rigid Steel Conduit: ANSI C80.1.

B. Rigid Aluminum Conduit: ANSI C80.5.

C. Intermediate Metal Conduit (IMC): Rigid steel.

D. Fittings and Conduit Bodies: ANSI/NEMA FB 1; material to match conduit.

2.3 PVC COATED METAL CONDUIT

A. Manufacturers:
   1. Robroy Plasti-Bond REDH$_2$OT PVC coated conduit.
   2. Substitutions of approved equals permitted.

B. Description: NEMA RN 1; rigid steel conduit with external PVC coating, 40 mil thick. Use in highly corrosive areas.

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel fittings with external PVC coating to match conduit.

2.4 FLEXIBLE METAL CONDUIT

A. Manufacturers:
1. Hubbell PolyTuff I with nonmetallic liquidtight connectors.
2. Substitutions of approved equals permitted.

B. Description: Interlocked steel construction. Maximum length of 6' for final connections to equipment.

C. Fittings: ANSI/NEMA FB 1.

2.5 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Description: Interlocked steel construction with PVC jacket. Maximum length of 6' for final connections to equipment.

B. Fittings: ANSI/NEMA FB 1.

2.6 ELECTRICAL METALLIC TUBING (EMT)

A. Description: ANSI C80.3; galvanized tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; compression steel type for all applications.

2.7 NONMETALLIC CONDUIT

A. Manufacturers:
1. Carlon Plus 40 and Plus 80 rigid PVC conduit.
2. Substitutions of approved equals permitted.

B. Description: NEMA TC 2; Schedule 40 and Schedule 80 PVC.

C. Fittings and Conduit Bodies: NEMA TC 3.

2.8 NONMETALLIC TUBING

A. Note: Conduit type ENT is NOT allowed.

2.9 TYPE MC AND AC CABLE

A. Type MC and Type AC cable are NOT allowed.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Install conduit in accordance with NECA "Standard of Installation."

B. Install nonmetallic conduit in accordance with manufacturer's instructions.

C. Arrange supports to prevent misalignment during wiring installation.

D. Support conduit using steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers. In all cases, conduit supports shall be commercially available, conform to code spacing requirements and be recommended by the manufacturer. Galvanized wire, baling wire and pipe strapping are not allowed.

E. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.

F. Fasten conduit supports to building structure and surfaces under provisions of Section 26 05 29.

G. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports

H. Do not attach conduit to ceiling support wires.

I. Arrange conduit to maintain headroom and present neat appearance.

J. Route conduit parallel and perpendicular to walls.

K. Route conduit installed above accessible ceilings parallel and perpendicular to walls.

L. Route conduit in and under slab from point-to-point.

M. Maintain adequate clearance between conduit and piping.

N. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F.

O. Cut conduit square using saw or pipecutter; de-burr cut ends.

P. Bring conduit to shoulder of fittings; fasten securely.

Q. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

R. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations.

S. Install no more than equivalent of three 90 degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch size.

T. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.

U. Provide suitable fittings to accommodate expansion and deflection where conduit crosses control and expansion joints.

V. Provide suitable pull string in each empty conduit except sleeves and nipples.

W. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

X. Ground and bond conduit under provisions of Section 26 05 26.

Y. Identify conduit under provisions of Section 26 05 53.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements.

B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.

END OF SECTION

SECTION 26 05 34 BOXES

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 RELATED SECTIONS 1
1.3 REFERENCES 1
1.4 REGULATORY REQUIREMENTS 1
2 PART 2 PRODUCTS 1
2.1 OUTLET BOXES 1
2.2 PULL AND JUNCTION BOXES 2
3 PART 3 EXECUTION 2
3.1 EXAMINATION 2
3.2 INSTALLATION 2
3.3 INTERFACE WITH OTHER PRODUCTS 4
3.4 ADJUSTING 4
3.5 CLEANING 4

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall and ceiling outlet boxes.

B. Floor boxes.

C. Pull and junction boxes.

1.2 RELATED SECTIONS

A. Section 26 06 20 - Wiring Devices: Wall plates in finished areas.

B. Section 26 05 53 - Electrical Identification.

1.3 REFERENCES

A. NECA - Standard of Installation.

B. NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

C. NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

D. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports.

E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

F. NFPA 70 - National Electrical Code.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Provide Products listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

2 PART 2 PRODUCTS

2.1 OUTLET BOXES

A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.

1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.

B. Nonmetallic Outlet Boxes: NEMA OS 2.

C. Cast Boxes: NEMA FB 1, Type FD, aluminum. Provide gasketed cover by box manufacturer. Provide threaded hubs.

D. Wall Plates for Finished Areas: As specified in Section 16140.

2.2 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

B. Hinged Enclosures: As specified in Drawings.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify locations of floor boxes and outlets prior to rough-in.

3.2 INSTALLATION

A. Install boxes in accordance with NECA "Standard of Installation."

B. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

C. Set wall mounted boxes at elevations to accommodate mounting heights indicated.

D. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Adjust box location up to 10 feet if required to accommodate intended purpose.

E. Orient boxes to accommodate wiring devices oriented as specified in Section 26 06 20.

F. Maintain headroom and present neat mechanical appearance.

G. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

H. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

I. Install boxes to preserve fire resistance rating of partitions and other elements.

J. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

K. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.

L. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

M. Use flush mounting outlet box in finished areas.

N. Do not install flush mounting box back-to-back in walls; provide minimum 6 inches separation. Provide minimum 24 inches separation in acoustic rated walls.

O. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

P. Use stamped steel bridges to fasten flush mounting outlet box between studs.

Q. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

R. Use adjustable steel channel fasteners for hung ceiling outlet box.

S. Do not fasten boxes to ceiling support wires.

T. Support boxes independently of conduit.

U. Use gang or sectional box where more than one device is mounted together.

V. Use gang box with plaster ring for single device outlets.

W. Use cast outlet box in exterior locations and wet locations.

X. Use cast floor boxes for installations in slab on grade; formed steel boxes are acceptable for other installations.

Y. Large Pull Boxes: Use hinged enclosure in interior dry locations, surface-mounted cast metal box in other locations.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Coordinate installation of outlet box for equipment connected under other sections of this specification.

3.4 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused box openings.

3.5 CLEANING

A. Clean interior of boxes to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 05 53 ELECTRICAL IDENTIFICATION

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 REFERENCES 1
1.3 SUBMITTALS FOR REVIEW 1
1.4 REGULATORY REQUIREMENTS 1
2 PART 2 PRODUCTS 1
2.1 NAMEPLATES AND LABELS 1
2.2 WIRE MARKERS 1
2.3 UNDERGROUND WARNING TAPE 3
3 PART 3 EXECUTION 3
3.1 PREPARATION 3
3.2 INSTALLATION 3

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Nameplates and labels.

B. Wire and cable markers.

C. Conduit markers.

1.2 REFERENCES

A. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS FOR REVIEW

A. Product Data: Provide catalog data for nameplates, labels, and markers.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

2 PART 2 PRODUCTS

2.1 NAMEPLATES AND LABELS

A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.

B. Locations:
1. Each electrical distribution and control equipment enclosure.
2. Communication cabinets.

C. Letter Size:
1. 1/8 inch letters for identifying individual equipment and loads.
2. 1/4 inch letters for identifying grouped equipment and loads.

D. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background. Use only for identification of individual wall switches and receptacles, control device stations.

2.2 WIRE MARKERS

A. Description: Cloth tape, split sleeve, or tubing type wire markers.

B. Locations: Each conductor at panelboard gutters, pull boxes, outlet and junction boxes, and each load connection.

C. Legend:
1. Power and Lighting Circuits: Branch circuit or feeder number indicated.
2. Control Circuits: Control wire number indicated on schematic and interconnection diagrams.
3. Phase.

D. All conductors and branch circuits shall be color coded as herein specified and strictly in accordance with Article 210 of the National Electric Code.

E. All conductors connected to a 120/208 volt power distribution system shall be color coded as follows:

Phase 1 - Black
Phase 2 - Red
Phase 3 - Blue
Neutral - White
Ground - Green

F. All conductors connected to a 277/480 volt power distribution systems shall be color coded as follows:

Phase 1 - Brown
Phase 2 - Yellow
Phase 3 - Purple
Neutral - Grey
Ground - Green

G. All conductors larger than No. 6 may be color coded by taping of black conductors with the proper color tape where exposed in panel boxes, junction boxes, terminal boxes, etc.

H. All conductors intended solely for grounding of equipment and devices shall be green unless indicated on the drawings to be bare. Green colored conductors shall not be used for other than grounding purposes. All conductors No. 6 and smaller shall be of the colors hereinbefore specified without exceptions. Under no circumstances shall green or white be used for any conductors other than for ground or grounded neutral conductors, respectively. Where 3-phase circuits are connected to 3-phase motors, temporary connections shall be made at motor

terminals to determine proper rotation and any reversing of phases shall be done at the motor terminals in order to maintain proper color coding of phase conductors.

2.3 UNDERGROUND WARNING TAPE

A. Description: 6-inch wide x 4-mil thick minimum plastic tape, colored red with suitable warning legend describing buried electrical lines.

B. Location: Along length of each underground conduit.

3 PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive nameplates and labels.

3.2 INSTALLATION

A. Install nameplate and label parallel to equipment lines.

B. Secure nameplate to equipment front using screws or adhesive.

C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.

D. Identify underground conduits using one underground warning tape per trench at 12 inches below finished grade.

E. Operational Identification and warnings: Wherever reasonably required to ensure safe and efficient operation and maintenance of electrical systems, and electrically connected mechanical systems and general systems, and to prevent misuse by unauthorized personnel, install self-adhesive plastic signs or similar equivalent identification, instruction or warnings on switches, outlets and other

F. controls, devices and covers of electrical enclosures.

END OF SECTION

SECTION 26 24 00 PANELBOARDS

1 PART 1 GENERAL 1
1.1 SECTION INCLUDES 1
1.2 RELATED SECTIONS 1
1.3 REFERENCES 1
1.4 SUBMITTALS FOR REVIEW 1
1.5 SUBMITTALS FOR CLOSEOUT 1
1.6 REGULATORY REQUIREMENTS 2
1.7 MAINTENANCE MATERIALS 2
2 PART 2 PRODUCTS 2
2.1 DISTRIBUTION PANELBOARDS 2
2.2 BRANCH CIRCUIT PANELBOARDS 3
2.3 LOAD CENTERS 3
3 PART 3 EXECUTION 4
3.1 INSTALLATION 4
3.2 FIELD QUALITY CONTROL 4
3.3 ADJUSTING 4

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Distribution panelboards.

B. Branch circuit panelboards.

C. Load centers.

1.2 RELATED SECTIONS

A. Section 26 05 26 - Grounding and Bonding.

B. Section 26 05 53 - Electrical Identification.

1.3 REFERENCES

A. NECA Standard of Installation (published by the National Electrical Contractors Association).

B. NEMA AB1 - Molded Case Circuit Breakers.

C. NEMA ICS 2 - Industrial Control Devices, Controllers and Assemblies.

D. NEMA KS1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

E. NEMA PB 1 - Panelboards.

F. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

G. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment (published by the International Electrical Testing Association).

H. NFPA 70 - National Electrical Code.

1.4 SUBMITTALS FOR REVIEW

A. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.

1.5 SUBMITTALS FOR CLOSEOUT

A. Record actual locations of panelboards and record actual circuiting arrangements in project record documents.

B. Maintenance Data: Include spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.6 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

1.7 MAINTENANCE MATERIALS

A. Furnish two each panelboard key.

2 PART 2 PRODUCTS

2.1 DISTRIBUTION PANELBOARDS

A. Manufacturers:
1. Square D Type I-LINE or approved equal.

B. Description: NEMA PB 1, circuit breaker type. Feeder breakers are to have individual plug-in mounting. Panel is to accept future breakers designed to attach directly to the vertical bus bars without the use of special kits, or special mounting modules.

C. Panelboard Bus: Copper, ratings as indicated. Provide copper ground bus in each panelboard.

D. Minimum integrated short circuit rating: 22,000 amps symmetrical on 240 volt or 208 volt applications.

E. Fusible Switch Assemblies: NEMA KS 1, quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle. Provide interlock to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse clips: Designed to accommodate Class R fuses.

F. Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

G. Molded Case Circuit Breakers with Current Limiters: NEMA AB 1, circuit breakers with replaceable current limiting elements, in addition to integral thermal and instantaneous magnetic trip in each pole.

H. Circuit Breaker Accessories: Trip units and auxiliary switches as indicated.

I. Enclosure: NEMA PB 1, Type 1.

J. Cabinet Front: Surface type, fastened with hinge and latch, finished in manufacturer's standard gray enamel.

2.2 BRANCH CIRCUIT PANELBOARDS

A. Manufacturers:
1. Square D Type NF for 480 volt and NQ for 240 or 208 volt or approved equal.

B. Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard. All lighting panels are to be of the same manufacture as distribution panels.

C. Panelboard Bus: Copper, ratings as indicated. Provide copper ground bus in each panelboard.

D. Minimum Integrated Short Circuit Rating: 10,000 amperes rms symmetrical for 240 or 208 volt panelboards; 22,000 amperes rms symmetrical for 480 volt panelboards.

E. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type HID for high intensity discharge lighting circuits, Type HACR for air conditioning equipment circuits, Class A ground fault interrupter circuit breakers where scheduled. Do not use tandem circuit breakers.

F. Enclosure: NEMA PB 1, Type 1.

G. Cabinet Box: 6 inches deep, 20 inches wide.

H. Cabinet Front: Surface cabinet front with concealed trim clamps, concealed hinge, metal directory frame, and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

2.3 LOAD CENTERS - MAY ONLY BE USED FOR RESIDENTIAL APPLICATIONS

A. Manufacturers:
1. Square D Type QO Loadcenters or approved equal.

B. Description: Circuit breaker load center, with bus ratings as indicated. Load centers are to be of the same manufacture as distribution panels.

C. Minimum Integrated Short Circuit Rating: 10,000 amperes rms symmetrical.

D. Molded Case Circuit Breakers: NEMA AB 1, plug-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type HID for high intensity discharge lighting circuits, Class A ground fault interrupter circuit breakers where indicated. Do not use tandem circuit breakers.

E. Enclosure: General Purpose.

F. Box: Surface type with door, and pull ring and latch. Finish in manufacturer's standard gray enamel.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Install panelboards in plumb accordance with NEMA PB 1.1 and the NECA "Standard of Installation."

B. Height: 6 feet to top of panelboard; install panelboards taller than 6 feet with bottom no more than 4 inches above floor.

C. Provide filler plates for unused spaces in panelboards.

D. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

E. Provide engraved plastic nameplates under the provisions of Section 16195.

F. Ground and bond panelboard enclosure according to Section 26 05 26.

3.2 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.4 for switches, Section 7.5 for circuit breakers.

3.3 ADJUSTING

A. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.

END OF SECTION

SECTION 265300 EXTERIOR LIGHTING

1 PART 1 GENERAL 1
1.1 RELATED DOCUMENTS: 1
1.2 DESCRIPTION OF WORK: 1
1.3 SUBMITTALS: 1
1.4 APPLICABLE PUBLICATIONS: 2
2 PART 2 PRODUCTS 3
2.1 MATERIAL AND EQUIPMENT, GENERAL: 3
2.2 LUMINAIRES: 3
2.3 LAMPS: 3
2.4 CONTROLS: 4
3 PART 3 EXECUTION 4
3.1 INSTALLATION: 4

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

B. SECTION 260000, BASIC ELECTRICAL REQUIREMENTS.

C. Division 26, BASIC ELECTRICAL MATERIALS AND METHODS Sections apply to work specified in this section.

D. MUSCO Lighting is preapproved to supply standards and luminaires for this project. MUSCO Specification Section 26 56 68 – Exterior Athletic Lighting shall be included as part of this Specification, and is appended for reference.

1.2 DESCRIPTION OF WORK:

A. This section includes the furnishing, installation, and connection of the exterior lighting.

1.3 SUBMITTALS:

A. In accordance with section 260010, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, furnish the following:

B. Shop Drawings:

1. Include sufficient information, clearly presented, to determine compliance with drawings and specifications.

2. Include electrical ratings, dimensions, mounting, material, required clearances, terminations, wiring and connection

diagrams, photometric data, ballasts, luminaires, lamps and controls.

C. Manuals: Provide complete operating and maintenance manuals, including technical data sheets, and information for ordering replacement parts.

1.4 APPLICABLE PUBLICATIONS:

A. The following specification and standards, except as hereinafter modified, are incorporated herein by reference and form a part of this specification to the extent indicated by the references thereto. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata) on the date of Invitation for Bids shall be applicable. In text such specifications and standards are referred to by basic designation only.

B. American Society for Testing and Materials (ASTM):

D3487..... Mineral Insulating Oil Used in Electrical Apparatus

C. American Concrete Institute (ACI):

No. 318.....Building Code Requirements for Reinforced Concrete.

D. American National Standards

C-57.12.....General Requirements For Distribution, Power, and Regulating Transformers.

C-81.10.....Electrical Lamp Bases and Holders.

E. National Fire Protection Association (NFPA):

No. 70..... National Electrical Code (NEC) Current Version

F. Underwriters Laboratories, Inc. (UL):

No. 57.....Electric Lighting Fixtures

No. 496.....Edison - Base Lampholders

No. 542..... Lampholders, Starters, and Starter Holders for Fluorescent Lamps

No. 773.....Photocontrols, Plug-in Locking-Type, for Use with Area and Roadway Lighting

No. 935.....Fluorescent-Lamp Ballasts

No. 1029..... High-Intensity-Discharge Lamp Ballasts

2 PART 2 PRODUCTS

2.1 MATERIAL AND EQUIPMENT, GENERAL:

A. Material and equipment shall be in accordance with NEC, UL, ANSI, as shown on the drawings, and as specified.

2.2 LUMINAIRES:

A. Shall be weatherproof outdoor types designed for efficient light utilization, adequate dissipation of lamp and ballast heat and safe cleaning and relamping.

B. All lamps shall be LED, rated for the application.

C. Pre-wire internal components to terminal strips at the factory.

2.3 LAMPS:

A. Install the proper lamps in every luminaire installed.

B. Lamps shall be LED, 5700 deg K.

2.4 CONTROLS:

A. Controls shall operate at 120 volts, 60 Hz.

B. Each Lighting System:

1. Shall be controlled by the control system shown on the drawings.

2. The arrangement and method of control and the control devices shall be shown on the drawings.

3 PART 3 EXECUTION

3.1 INSTALLATION:

A. Installation shall be in accordance with the NEC, and as shown on the drawings.

END OF SECTION

LIGHTING SPECIFICATION
PREPARED FOR

Lake View High School Football & Tennis

Sports Lighting Project
San Angelo, TX
February 27, 2026

Project # 231411

SUBMITTED BY:

Musco Sports Lighting, LLC

2107 Stewart Road
PO Box 260
Muscatine, Iowa 52761
Local Phone: 563/263-2281
Toll Free: 800/756-1205
Fax: 800/374-6402

This information is provided by Musco exclusively for this project. Reproduction or distribution of the enclosed documents or information without the written permission of Musco Sports Lighting, LLC is prohibited.

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Lakeview High School using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Football
2. Tennis

D. The primary goals of this sports lighting project are:

1. Guaranteed Light Levels: Selection of appropriate light levels impacts the safety of players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
2. Lighting Design Upgrade - Upgrade light levels and uniformity on the field by replacing existing HID luminaires with LED luminaires, and by increasing the number of luminaires to maximize the potential of existing structural and electrical equipment.
3. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to players, spectators, and neighbors.
4. Cost of Ownership: To reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
5. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
    a. Control and monitoring system shall provide contactor control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels (Footcandles)	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Football	50	2:1	72	30’ x 30’
Tennis 1-8	50	2:1	30	20’ x 20’

B. Color Temperature: The lighting system shall have a minimum color temperature of <5700K and a CRI of <65.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
3. Aerial lighting – Adequate illumination must be provided above the field to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.
4. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
4	F1 – F4	80’
6	T1 – T6 Existing	40’
4	T7 – T10	40’

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

Football	Average	Maximum
3’ @ 150’ Specified Spill Line Horizontal Footcandles	<.0225 fc	.062 fc
5’ @ 150’ Specified Spill Line Max Vertical Footcandles	<.0565 fc	.104 fc
5’ @ 150’ Specified Spill Line Max Candela (taken at 5 ft above grade)		<2282 cd
Tennis	Average	Maximum
3’ @ 150’ Specified Spill Line Horizontal Footcandles	0 fc	0 fc
5’ @ 150’ Specified Spill Line Max Vertical Footcandles	0 fc	0 fc
5’ @ 150’ Specified Spill Line Max Candela (taken at 5 ft above grade)		0 cd

C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade.

D. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum

of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

E. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
   1. Spill verification: Illumination levels shall be taken in accordance with IESNA RP-6-22. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 COST OF OWNERSHIP

A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:
   1. Galvanized steel poles and cross-arm assembly.
   2. Non-approved pole technology:
      a. Square static cast concrete poles will not be accepted.
      b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
   3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
      a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
      b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.

4. Manufacturer will supply all drivers and supporting electrical equipment.
    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.
8. Contactor cabinet to provide on-off control.
9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    a. Integrated grounding via concrete encased electrode grounding system.
    b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
    1. Electric power: 240 Volt, 1 Phase on tennis & 480 Volt, 2 Phase on Football.
    2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be 82.12kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, email).

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS and Android devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility.
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

(Use for 2021 IBC)

A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 105 and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2021 IBC Table 1806.2.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor’s responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner’s approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Texas for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 8-10 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.

2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, uplight for aerial visibility, and offsite candela readings are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

PART 4 – DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.1.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco’s Light-Structure System™ with TLC for LED® is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner’s representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Texas, if required by owner.
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide ten (10) references of customers currently using proposed system in the state of Texas.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Texas.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Texas.
	K	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Texas. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.

	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
	P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until <500 candela or less is achieved.

The information supplied herein shall be used for the purpose of complying with the specifications for Lake View High School. By signing below, I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

SECTION 26 56 13 POLES AND STANDARDS

1 PART 1 GENERAL 1
1.1 DESCRIPTION: 1
1.2 RELATED WORK: 1
1.3 QUALITY ASSURANCE: 1
1.4 SUBMITTALS: 1
1.5 CODES AND STANDARDS: 2
1.6 PRODUCT DELIVERY, STORAGE AND HANDLING 2
1.7 SEQUENCING AND SCHEDULING: 2
2 PART 2 PRODUCTS 2
2.1 MANUFACTURES: 2
3 PART 3 EXECUTION 3
3.1 EXAMINATION 3
3.2 INSTALLATION 4
3.3 FOUNDATIONS 4
3.4 GROUNDING 4

1 PART 1 GENERAL

1.1 DESCRIPTION:

A. Extent, location, and details of electrical standards work is indicated on drawings and in schedules.

B. Refer to other Division 26 sections for cables/wires, raceways, transformers, and electrical boxes and fittings work which are required in connection with electrical poles and standards.

C. Exterior lighting fixtures (luminaires) and brackets which are required in connection with electrical poles and standards are specified in Division 26 section 265300, “Exterior Luminaires”.

1.2 RELATED WORK:

A. The Architectural, Structural, and Civil Plans and Specifications, including GENERAL PROVISIONS, SUPPLEMENTAL GENERAL PROVISIONS, SPECIAL PROVISIONS AND DIVISION 1 - GENERAL REQUIREMENTS are hereby made a part of this section.

B. Section 260000, GENERAL PROVISIONS FOR ELECTRICAL.

C. Section 260526, GROUNDING.

D. Section 265300, EXTERIOR LIGHTING FIXTURES.

E. Division 26 Basic Electrical Materials and Methods sections apply to work specified in this section.

1.3 QUALITY ASSURANCE:

A. Manufacturer’s Qualifications: Firms regularly engaged in manufacture of electrical standards of types and sizes required, whose products have been unsatisfactory use in similar service for not less than 5 years.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer’s data on electrical standards and hardware; include certified dimension drawings for fabricated standards and mast arms, if any.

1.5 CODES AND STANDARDS:

A. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 220 and 250, as applicable to installation, and construction of electrical poles and standards.

B. UL Compliance: Comply with UL standards, including UL 486A and B, pertaining to electrical poles and standards. Provide lighting components and fittings which are UL-listed and labeled.

C. NEMA Compliance: Comply with NEMA Stds Pub/No's. LE 2 and TT 1 pertaining to electrical pole and standard units, materials, and installation.

D. IES Compliance: Comply with applicable requirements of IES RP-20, "Sports Facilities Lighting."

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver electrical standard products, and fittings in factory-fabricated containers or wrappings, which properly protect products from damage.

B. Store electrical standard products, and fittings in original cartons in well-ventilated space protected from moisture, construction traffic and debris.

C. Handle electrical standard products carefully to prevent breakage, denting, and scoring finish. Do not install damaged units or components; replace with new.

1.7 SEQUENCING AND SCHEDULING:

A. Coordinate with other electrical work including wires/cables, electrical boxes, and fittings, and raceways, to properly interface installation of electrical pole and standard work with other work.

B. Sequence electrical pole and standard installation work with other work to minimize possibility of damage and soiling during remainder of construction period.

2 PART 2 PRODUCTS

2.1 MANUFACTURES:

A. Available Manufactures: Subject to compliance with requirements, manufacturers offering electrical standards which may be incorporated in the work include, but are not limited to, the following:

Standards & Luminaires:

Musco Lighting

B. Metal Lighting Standards (Poles): Provide metal, raceway-type, lighting standards, of sizes and types indicated. Equip with grounding connections readily accessible from handhole or transformer base access doors; and construct of the following materials and additional construction features as indicated.

1. Material: Steel.

a. Configuration: Anchor base type with hand hole and cover.

b. Finish: Architectural Class 1 dark bronze anodized.

c. Break-over type poles only for new work.

d. Structural Class 2.

2. Design standards to withstand loads developed by 90 MPH steady wind pressure and 117 MPH gusting wind equivalent as adjusted for height above ground level, pole, luminaire, and arm shape in accordance with the TIA-222-G Standard.

3. Metal Lighting Standard (Poles) Accessories: Provide accessories for metal lighting standards, including anchor bolts, base plate, leveling nuts, as recommended by lighting standard manufacturer, of sizes and materials needed to meet erection and loading application requirements.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which standards equipment and components are to be installed, and substrate which will support equipment. Notify Contractor in writing of conditions detrimental to proper completion of the Work. Do not proceed with the Work until

unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.2 INSTALLATION

A. Install pole and standard units and products as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC, NESC, and NEMA standards, and with recognized industry practices to ensure that roadway and parking area lighting equipment fulfill requirements.

B. Utilize belt slings or rope (not chain or cable) to protect finishes when raising and setting finished standards.

C. Set standards plumb. Support adequately when anchoring to foundations. "Set" leveling nuts on both sides of base plates.

D. Provide sufficient space encompassing hand access and cable entrance holes for installation of underground cabling where indicated.

E. Fasten electrical lighting fixtures and brackets securely to indicated structural supports, including standards; and ensure that installed fixtures are plum and level.

F. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors.

3.3 FOUNDATIONS

A. Concrete, reinforcing, and related work shall be provided under Division 26 work.

3.4 GROUNDING

A. Provide equipment grounding connections for poles and standards as indicated. Tighten connections to comply with tightening torques specified in UL 486A to assure permanent and effective grounding.

END OF SECTION

LIGHTING SPECIFICATION
PREPARED FOR

Central High School Tennis

Sports Lighting Project
San Angelo, TX
February 27, 2026

Project # 252200

SUBMITTED BY:

Musco Sports Lighting, LLC

2107 Stewart Road
PO Box 260
Muscatine, Iowa 52761
Local Phone: 563/263-2281
Toll Free: 800/756-1205
Fax: 800/374-6402

This information is provided by Musco exclusively for this project. Reproduction or distribution of the enclosed documents or information without the written permission of Musco Sports Lighting, LLC is prohibited.

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Central High School using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Tennis

D. The primary goals of this sports lighting project are:

1. Guaranteed Light Levels: Selection of appropriate light levels impacts the safety of players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
2. Lighting Design Upgrade - Upgrade light levels and uniformity on the field by replacing existing HID luminaires with LED luminaires, and by increasing the number of luminaires to maximize the potential of existing structural and electrical equipment.
3. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to players, spectators, and neighbors.
4. Cost of Ownership: To reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
5. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
    a. Control and monitoring system shall provide contactor control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels (Footcandles)	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Tennis (2 Courts)	55	1.4:1	30	20’ x 20’

B. Color Temperature: The lighting system shall have a minimum color temperature of <5700K and a

CRI of <65.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
3. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
4	T1 – T4	40’

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

	Average	Maximum
Specified Spill @3’ Horizontal Footcandles	0 fc	0 fc
Specified Spill @ 5’ Line Max Vertical Footcandles	0 fc	0 fc
Specified Spill @ 5’ Line Max Candela (taken at 5 ft above grade)		<.0032 cd

C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade.

D. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer’s laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

E. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
1. Spill verification: Illumination levels shall be taken in accordance with IESNA RP-6-22. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 COST OF OWNERSHIP

A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:

1. Galvanized steel poles and cross-arm assembly.
2. Non-approved pole technology:
    a. Square static cast concrete poles will not be accepted.
    b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
    a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
    b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
4. Manufacturer will supply all drivers and supporting electrical equipment.
    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.

8. Contactor cabinet to provide on-off control.
9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    a. Integrated grounding via concrete encased electrode grounding system.
    b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
    1. Electric power: 480 Volt, 3 Phase.
    2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be 7.04kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, email).

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS and Android devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field

lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility.
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

(Use for 2021 IBC)

A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 105 and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2021 IBC Table 1806.2.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Texas for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 8-10 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
3. The contractor/manufacturer will be held responsible for any and all changes needed to bring

these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, uplight for aerial visibility, and offsite candela readings are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

PART 4 – DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.1.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco's Light-Structure System™ with TLC for LED® is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Texas, if required by owner.
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide ten (10) references of customers currently using proposed system in the state of Texas.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Texas.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Texas.
	K	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Texas. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.

	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
	P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until <500 candela or less is achieved.

The information supplied herein shall be used for the purpose of complying with the specifications for Lake View High School. By signing below, I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

LIGHTING SPECIFICATION
PREPARED FOR

Lake View High School Football & Tennis

Sports Lighting Project
San Angelo, TX
February 27, 2026

Project # 231411

SUBMITTED BY:

Musco Sports Lighting, LLC

2107 Stewart Road
PO Box 260
Muscatine, Iowa 52761
Local Phone: 563/263-2281
Toll Free: 800/756-1205
Fax: 800/374-6402

This information is provided by Musco exclusively for this project. Reproduction or distribution of the enclosed documents or information without the written permission of Musco Sports Lighting, LLC is prohibited.

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Lakeview High School using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Football
2. Tennis

D. The primary goals of this sports lighting project are:

1. Guaranteed Light Levels: Selection of appropriate light levels impacts the safety of players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
2. Lighting Design Upgrade - Upgrade light levels and uniformity on the field by replacing existing HID luminaires with LED luminaires, and by increasing the number of luminaires to maximize the potential of existing structural and electrical equipment.
3. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to players, spectators, and neighbors.
4. Cost of Ownership: To reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
5. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
    a. Control and monitoring system shall provide contactor control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed, and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels (Footcandles)	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Football	50	2:1	72	30’ x 30’
Tennis 1-8	50	2:1	30	20’ x 20’

B. Color Temperature: The lighting system shall have a minimum color temperature of <5700K and a CRI of <65.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
3. Aerial lighting – Adequate illumination must be provided above the field to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.
4. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
4	F1 – F4	80’
6	T1 – T6 Existing	40’
4	T7 – T10	40’

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers, and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

Football	Average	Maximum
3’ @ 150’ Specified Spill Line Horizontal Footcandles	<.0225 fc	.062 fc
5’ @ 150’ Specified Spill Line Max Vertical Footcandles	<.0565 fc	.104 fc
5’ @ 150’ Specified Spill Line Max Candela (taken at 5 ft above grade)		<2282 cd
Tennis	Average	Maximum
3’ @ 150’ Specified Spill Line Horizontal Footcandles	0 fc	0 fc
5’ @ 150’ Specified Spill Line Max Vertical Footcandles	0 fc	0 fc
5’ @ 150’ Specified Spill Line Max Candela (taken at 5 ft above grade)		0 cd

C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade.

D. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum

of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

E. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
   1. Spill verification: Illumination levels shall be taken in accordance with IESNA RP-6-22. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 COST OF OWNERSHIP

A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:
   1. Galvanized steel poles and cross-arm assembly.
   2. Non-approved pole technology:
      a. Square static cast concrete poles will not be accepted.
      b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
   3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
      a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
      b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-enforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.

4. Manufacturer will supply all drivers and supporting electrical equipment.
    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.
8. Contactor cabinet to provide on-off control.
9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    a. Integrated grounding via concrete encased electrode grounding system.
    b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
    1. Electric power: 240 Volt, 1 Phase on tennis & 480 Volt, 2 Phase on Football.
    2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be 82.12kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, email).

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS and Android devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility.
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

(Use for 2021 IBC)

A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 105 and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2021 IBC Table 1806.2.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor’s responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner’s approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Texas for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 8-10 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.

2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, uplight for aerial visibility, and offsite candela readings are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

PART 4 – DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.1.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco’s Light-Structure System™ with TLC for LED® is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner’s representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Texas, if required by owner.
	H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide ten (10) references of customers currently using proposed system in the state of Texas.
	I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Texas.
	J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Texas.
	K	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Texas. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
	M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.

	N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
	P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until <500 candela or less is achieved.

The information supplied herein shall be used for the purpose of complying with the specifications for Lake View High School. By signing below, I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

SKG ENGINEERING, LLC

Geotechnical Report

Proposed Central High School

Athletic Facilities Updates

1919 Knickerbocker Road

San Angelo, Texas



2/10/2026
SKG Engineering, LLC
F-7608

PREPARED FOR:
Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

February 2026

26-E-1745

SKG
ENGINEERING, LLC
FIRM REGISTRATION NUMBER F-7608
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

February 10, 2026 26-E-1745

Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

Subject: Geotechnical Report, Proposed Central High School Athletic Facility Updates, 1919 Knickerbocker Road, San Angelo, Texas

Mr. Henry,

In accordance with your authorization, SKG Engineering has completed its geotechnical investigation at the referenced site. The work was done in accordance with the proposal dated the 22nd day of October, 2026. The data and results are included in the attached report.

If you have any questions or comments, or if we can be of any more service to you, please do not hesitate to contact us at (325) 655-1288.

Sincerely,
SKG Engineering, LLC

Caleb Miller, E.I.T. Jason Clinton, P.E.



SKG Engineering, LLC
F-7608

Attachments - Geotechnical Report

CC: File

N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Geotechnical Report.doc

Table of Contents

1.0 Introduction **1**

1.1 Overview 1

2.0 Exploration **1**

2.1 Soil Borings 1
2.2 Laboratory Tests 1

3.0 Subsurface Investigation **1**

3.1 Site Geology 1
3.2 Subsurface Materials and Conditions 2
3.3 Subsurface Water 2

4.0 Site and Design Considerations **2**

4.1 Basic Considerations 2
4.2 Subsurface Moisture 2
4.3 Shrink/Swell Considerations 3
4.4 Synthetic Turf 3
4.4.1 Synthetic Turf Recommendations 3
4.5 Allowable Bearing Capacity 4
4.6 Lateral Design Criteria 4
4.7 Backfill Material and Compaction 4
4.8 Drainage 4
4.9 Underground Utilities 4
4.10 Exterior Flatwork Considerations 5
4.11 Trenching and Excavation Requirements 5

5.0 Site Preparation **5**

5.1 Subgrade 5
5.2 Engineered Fill 5
5.3 Flexible Base Material 6
5.4 Testing 6

6.0 Limitations **6**

Attachments

A – Field Conditions
B – Borehole Location Map
C – Logs of Boreholes
D – Laboratory Result

1.0 Introduction

1.1 Overview

The purpose of this exploration was to determine subsurface materials and conditions and to establish the characteristics of these materials in order to recommend the criteria by which to establish subgrade recommendations for the proposed updates to the Central High School athletic Facilities. Our understanding is that the proposed updates include the installation of artificial turf and subsurface drainage systems for the baseball, softball, and football fields at the San Angelo Stadium area. Considerations for the replacement of the existing synthetic turf at the band field were not included in this scope of work. A summary of field conditions is included in Attachment A.

2.0 Exploration

2.1 Soil Borings

The subsurface explorations were conducted on this site in January 2026. The boreholes were drilled to a maximum depth of 15', and the logs of these boreholes are included in this report. The drilling was performed with a truck mounted air rotary drill rig. The drilling activities were performed in accordance with accepted methods and procedures. A total of 14 boreholes, designated B1 – B14 were conducted at the site. B1 – B4 were conducted to a maximum depth of 15’ as close as was accessible to the area of the baseball field. B5 – B8 were conducted to a maximum depth of 15’ as close as was accessible to the softball field. B9 – B14 were conducted to a maximum depth of 15’ within the football field. A location map showing the approximate borehole locations is included in Attachment B.

Material samples were recovered at various depths for testing. The primary means of extracting subsurface soil samples was by the use of a 3" Shelby-tube and/or a 2" O.D. split barrel sampler. Split spoon sampling procedures were performed in accordance with ASTM D 1586 and Shelby tube samples were obtained in accordance with ASTM D 1587. The samples were extruded or removed in the field and placed in moisture tight bags and labeled. The samples were then transported to the laboratory for testing and visual evaluation by geotechnical personnel. The Unified Soil Classification System was utilized in accordance with ASTM D 2487 to verify field classifications. Refer to the logs of borings located in Attachment C for lithology, sample locations and quantities.

2.2 Laboratory Tests

Tests were performed to determine engineering characteristics of the subsurface materials encountered, including, but not limited to, soil moisture content (ASTM D 2216), Atterberg Limits (ASTM D 4318), and sieve analysis. The test results can be found in Attachment D. Samples not tested in the laboratory will be retained for a maximum of 60 days and then discarded unless otherwise notified in writing prior to disposal of the samples.

3.0 Subsurface Investigation

3.1 Site Geology

Based on the location of the site on geological maps, it is our opinion that the predominate soil is the Angelo Series, Angelo-Urban land complex (AuB). These particular soils are indicative of nearly level to gently sloping topography on smooth outwashed plains. These soils are well drained and have medium surface runoff. Shrink-swell potential is expected to be moderate and soil corrosivity to uncoated steel is expected to be high. Based on the location of the site and soil conditions we do not foresee any adverse issues related to elevated sulfate concentrations.

3.2 Subsurface Materials and Conditions

The specific subsurface stratum encountered in each borehole is described in the logs of boreholes included in Attachment C. The strata encountered at the boreholes conducted at the site can be considered a single stratum consisting of lean clay that extends from a depth of 0' to the depth of the boreholes.

The subsurface stratum varies from those stated above as follows:

B2 – Silty clayey sand encountered from a depth of 6’ to 14’;
B3 – Sandstone rock encountered from a depth of 7’ to 9’;
B3 – Silty clayey sand encountered from a depth of 9’ to the depth of the borehole;
B4 – Clayey sand encountered from a depth of 6’ to 8’;
B5 – Sandy silty clay encountered from a depth of 1’ to 6’;
B11 – Sandy silt encountered from a depth of 8’ t the depth of the borehole;

3.3 Subsurface Water

There was groundwater noted in boreholes at the time of the investigation. Refer to the logs of borings located in Attachment C for specific water levels. The groundwater noted in the boreholes does not express or imply that a groundwater study was performed, which is beyond the scope of this report. It should be noted that groundwater levels are subject to change based on seasonal and climatic conditions. Projects that include excavations or pier drilling should determine how the presence of groundwater will affect their scope of work and perform any due diligence work prior to mobilizing equipment to the site.

4.0 Site and Design Considerations

4.1 Basic Considerations

The properties of in-situ soils, site characteristics, and the level of tolerable deflection should be carefully considered during the design phase. A foundation should economically meet the functional requirements of the structure and minimize differential movement of the structure that could cause damage.

The site is developed with the existing high school athletic facilities, which include but are not limited to fencing, the existing field and sprinkler systems, buildings, and bleachers. Areas surrounding the fields have natural vegetation. Any of the existing development, and vegetation that fall within the footprint of the proposed development additions should be removed in their entirety, and site soils should be used to fill the excavated areas. The fill should be placed and compacted in accordance with the Site Preparation section of this report.

The depth and thickness of the gravel strata present varies across the site. The gravel strata was encountered at depths of 12’ to the depth of the boreholes below the existing surface in some of the borehole conducted within the area of the proposed improvements. The gravel and rock noted may hinder proposed excavation activities at the site. The variations should be noted by the engineer and contractor for all aspects of design and construction.

Routing of drainage should be addressed in the design phase of the project to ensure drainage is routed away and around proposed foundation systems.

4.2 Subsurface Moisture

Water, in the form of a liquid, can rise upward through subsurface soils by capillary action, absorption, or gravitational pull well above the water table. Water changes from a liquid to a vapor as it evaporates. Water vapor will move from areas of high vapor pressure to a lower vapor pressure through diffusion. Diffusion is how water vapor distributes itself above the water table and occurs in both soils and concrete.

It is generally recognized that the relative humidity in the soils below a foundation will be close to 100%. Such a high relative humidity is reached even when the moisture content in the material below the foundation is found to be low. Without a capillary break or vapor barrier below the foundation, a high relative humidity or water source below a foundation can contribute moisture to the concrete. This can cause soluble alkalis in the concrete to enter into solution, thus raising the pH. Moisture-induced pH levels in concrete can be in the range of 10 to 12, while normal cured levels can be in the range of 7 to 9.

The impact of subsurface moisture can be reduced by the use of a vapor barrier or capillary break. A vapor barrier below the foundation is recommended when floor coverings or adhesives are sensitive to moisture or alkaline conditions. A vapor barrier can be in the form of polyvinyl sheets, and a capillary break can be a sand or granular base. Verification of the vapor emission limitations from the foundation is vital to the selection of the proper vapor barrier system.

4.3 Shrink/Swell Considerations

Shrink/swell movements of the in-situ soils with changes in the soil moisture content are anticipated to be low at the site. The Potential Vertical Rise (PVR) was calculated to be on the order of ¾" using the TXDOT PVR Method. The PVR was approximated using a potential active zone to fifteen feet below grade. The intent of this section is to provide depths for soil removal and replacement to achiev1e the PVR values noted below. No finished floor elevations were provided at the time of this report and consideration of specific elevations would have to be reviewed when additional information is available.

The PVR can be reduced to be on the order of ½" by providing a 1' layer of engineered fill below the foundation. When engineered fill is utilized to reduce the PVR, the continuous footings must bear at the same depth as the depth of the engineered fill or engineered fill should be placed below the grade beam to accomplish the required depth. Refer to the Engineered Fill section for placement and specifications.

The PVR and moreover foundation movement is effected by many factors that influence its magnitude and rate of change. Factors include: seasonal variations in the moisture content between the interior and perimeter of the foundation, topographic relief, vegetative cover, confining pressures, fluctuating and shallow water tables, and the composition of underlying soils. In-situ clays can expand with the introduction of moisture and shrink with decreases in moisture.

4.4 Synthetic Turf

4.4.1 Synthetic Turf Recommendations

We recommend removing and replacing in-situ soils on the fields to a depth that will reduce the PVR to within the turf manufacturer’s specifications or to accommodate the owner’s tolerance for movement. Engineered fill or an approved fill should be used to bring the fields up to design grade. The placement of these materials shall be in accordance with the Site Preparation section of this report.

We have provided the following typical turf section for review. The owner should verify the turf section with the contractor installing the turf to ensure it aligns with the contractor’s typical installation methods. We recommend a system consisting of a fine aggregate underneath the turf backing, followed by a base aggregate between the fine aggregate and engineered fill as per the manufacturer's specification. The base aggregate shall be placed on a geotextile liner above the engineered fill with the field graded to provide for adequate drainage.

We recommend that an adequate drainage system be installed beneath the turf, with drainage lines daylighted off and away from the fields. We recommend that panel drains be wrapped in a geotextile fabric. Our understanding is that the contractor intends to install flat panel drains and perforated HDPE drainage piping that will terminate at a field collector line ditch.

4.5 Allowable Bearing Capacity

Ancillary structures in the vicinity of the fields/geotechnical borings may be supported with spread footings where there is a suitable bearing stratum near the surface and where the potential for heave or settlement is within an acceptable range. Spread footings should be sized to support anticipated loads. We recommend bearing the spread footings a minimum of 1' below existing grade. The allowable bearing pressure exerted by spread footings on the in-situ soils from a depth of 1’ to 4’ is 2,300 psf.

4.6 Lateral Design Criteria

Recommended Lateral Design Criteria per Soil Type				
Soil Type	Lateral Bearing Pressure, to a maximum value at 15 feet (psf/ft)	Angle of Internal Friction (degrees)	Friction Factor (Between Concrete and Native Soil)	Approximate Unit Weight (pcf)
Lean Clay	100	28	0.25	107
Clayey sand	150	31	0.25	115
Silty Sand	150	34	0.25	117
Silt	100	32	0.25	107

4.7 Backfill Material and Compaction

Retaining walls should be backfilled with a 12" width of pea gravel for the height of the wall. Backfill behind the pea gravel should be a non-expansive fill material with a maximum particle size of 4" nominal diameter, three-quarters of the wall height, and a clay cap on the top quarter of the wall height. We recommend providing weep holes along the bottom of the retaining wall height at 10' on center maximum spacing for the length of the wall. We recommend placing fill in a maximum 8" loose lifts and compacted to between 93% to 97% of the Standard Proctor Density. Compaction tests should be performed on each lift.

4.8 Drainage

Positive drainage away from the foundation must be provided and maintained to reduce subsurface moisture variations. The minimum recommended slope away from the foundation is 5% for the first 10 feet for areas not covered by a sidewalk or pavement. Water shall not be permitted to pond on the finished site.

Due to the presence of in-situ clays, we recommend that, throughout the design and construction phase, an emphasis on maintaining a stable moisture content in the soils beneath and adjacent to the foundation be a major priority. Temporary and permanent control measures should be properly designed and installed to ensure positive drainage away from the foundation to maintain a quasi-stable soil moisture content. The measures include, but are not limited to, gutters, sprinkler systems, and a site grading plan.

4.9 Underground Utilities

The backfill material used for underground utility trenches that do not pass within 5’ of the edge of a foundation should be on-site materials or imported clayey materials. We recommend not using granular material to avoid the possibility of water migration through the trenches and possibly under foundation systems at the site.

For utility trenches that pass within 5’ of the edge or pass underneath a foundation on the site, the backfill material used for the trench shall be a controlled low-strength material (CLSM) conforming to ACI 229 and ASTM D4832, with compressive strength between 50 and 10 psi at 28 days. The mixture shall be self-leveling as per ASTM D6103, with a spread greater than or equal to 8” and shall be excavatable.

The fill shall be placed without compaction. Utility lines must be anchored to resist buoyancy. Volume shall be verified by yield and density testing.

4.10 Exterior Flatwork Considerations

Engineered fill shall be used as needed to bring the flatwork to grade. Control joints should be cut at a maximum spacing of 6' for the length of the flatwork and expansion joints at a maximum spacing of 50'. We recommend installing flatwork as not to impound water adjacent to structural foundations.

4.11 Trenching and Excavation Requirements

The guidelines specified by the Occupational Safety and Health Administration (OSHA) should be followed for all excavation activities. The OSHA Standards (29 CFR Part 1926 revised, 1989) require all trenches that exceed 5' in depth to be shored or benched appropriately unless the soil stratum is "solid" rock.

The OSHA standards should be strictly adhered to for all excavation activities. The classification of the soils encountered at the site is Type C soils. The soil classifications are based on soils encountered in the boreholes conducted at the site. Refer to the following OSHA Table B-1 for slope requirements for excavations that are less than 20 feet in depth. Trenches in excess of 20 feet in depth should be designed by a registered professional engineer.

Maximum Allowable Slopes		
Stratum	Horizontal	Vertical
Stable Rock	Vertical	1
Type A	3/4	1
Type B	1	1
Type C	1-1/2	1

The above information is provided for temporary excavations. We recommend that any permanent trenches proposed for the site should have a minimum of 4:1 side slope. Any permanent trenches or channels should be lined with erosion control measures.

5.0 Site Preparation

5.1 Subgrade

Remove the top 6" of surface soils, any deleterious material, and in-situ soils as necessary to bring the finished floor elevation to design grade. The top 6" of material should then be scarified, moisture conditioned, and compacted to at least 95% of the Standard Proctor Density within 2% points of the optimum moisture content. Any soft or pumping areas are to be excavated, and an engineered fill shall be used as backfill. Where existing slopes exceed ten horizontal to one vertical, the cross slope should be benched to provide a minimum of 6' bench width.

5.2 Engineered Fill

An approved select fill shall be used to bring the foundation system to grade. It shall be a cohesive soil, free of deleterious material, have a liquid limit of less than 40, and a plasticity index between 6 and 14. The select fill shall meet the following percent retained on sieve requirements: 2-1/2": 0-5%, No. 4: 40-80%, and No. 40: 50-85% or obtain approval from the geotechnical engineer. The fill should be installed in maximum eight-inch loose lifts and compacted to at least 95% of the Standard Proctor Density within 3% points of the optimum moisture content. Base consisting of TxDOT Type A, Grade 2 limestone will be accepted as engineered fill. Blended materials utilized for engineered fill will have to meet the specifications herein and be approved by the geotechnical engineer. If a blended material is approved, the

contractor shall blend the material and have one stockpile for the entire project. Continuous blending of material throughout the duration of the project is not acceptable.

5.3 Flexible Base Material

Provide compacted base consisting of Type A, Grade 2, limestone material below the foundation. Compact to 96% of the Standard Proctor Density within 2% points of the optimum moisture content. Material shall be placed in lifts not to exceed 8". Alternative flexible base materials provided by a local supplier which do not meet theses specifications shall be approved by the Engineer of record.

5.4 Testing

Test results of the engineered fill shall be submitted to the engineer of record for approval prior to incorporating into the work. Arrange for a testing agency to verify flexible base, engineered fill, and subgrade compaction and moisture content. To confirm the compaction of the subgrade, engineered fill, and base we recommend the more stringent of three density tests for each lift placed or one density test for every 2,000 square feet of foundation area for each lift placed. The Standard Proctor Density shall be determined in accordance with ASTM D698.

6.0 Limitations

The recommendations presented in this report are based upon the information obtained from the borings performed at the site and from other information discussed in this report. This report is based upon the findings from the borings made and may not identify all subsurface variations which exist across the site. The nature and extent of such variations may not become evident until construction. If significant variations appear, contact SKG Engineering to further access the design criteria and the recommendations contained within this report.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such conditions, the appropriate investigations should be performed.

No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are made, the recommendations contained in this report shall not be considered valid unless SKG Engineering reviews the changes and either verifies or modifies the conclusions of this report in writing.

Attachment A

Field Conditions

Summary of Field Conditions

The following field conditions were observed during the field exploration activities.

1. The site is developed with the current Central High School athletic facilities. The accessibility of some types of equipment should be verified in some of the areas of the site where multiple buildings are in the area.

2. The surface soil conditions on the site are generally clay that is considered a soft soil material. The soil conditions will probably prove to hinder mobilization of some types of construction equipment during rain events that saturate the soils.

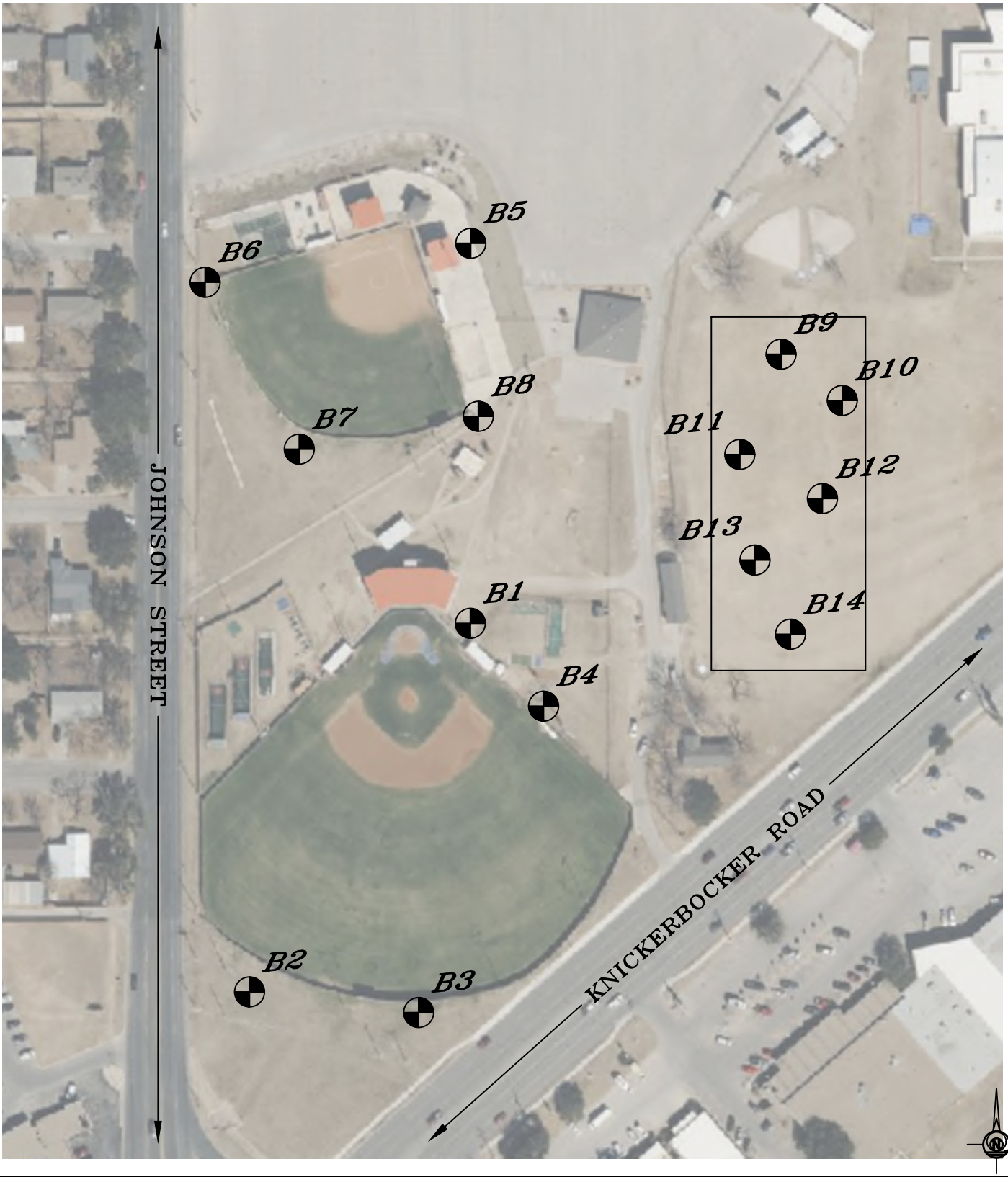
3. Groundwater seepage was present at the time of drilling activities. Refer to the logs of boreholes for specific water levels.

4. Rock was present subsurface at varying depths across the site. Refer to the logs of boreholes for specific lithology.

5. Site soils may be of quality to be used for engineered fill material under the foundation systems if it conforms to the specifications for engineered fill and installed in accordance with the SITE PREPARATION section of this report. Rubble, debris and deleterious material should be removed from the site soils if used under foundation systems.

Attachment B

Borehole Location Map



SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

SAISD ATHLETIC PROJECTS
SAN ANGELO, TEXAS

BOREHOLE LOCATION MAP

DWG BY:	DWG. DATE:
OD	2.4.2026
JOB NO.	SHEET NO.
25-E-1745	BH1
SCALE:	
1"=150'	

Attachment C

Logs of Boreholes

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE.	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
				GP	POORLY GRADED GRAVELS OR GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
				GC	CLAYEY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
	SILTS AND CLAYS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
				SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND–SILT MIXTURES.
				SC	CLAYEY SANDS, SAND–CLAY MIXTURES.
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE.	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50.			ML	INORGANIC SILTS AND VERY FINE SANDS, FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS AND WITH SLIGHT PLASTICITY.
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50.			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS.
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS.

SAMPLER TYPE



SOIL TERMS	DESCRIPTION
BLOCKY	CONTAINS CRACKS OR FAILURE PLANES RESULTING IN ROUGH CUBES OF MATERIAL.
CALCAREOUS	CONTAINS APPRECIABLE QUANTITIES OF CALCIUM CARBONATE.
FISSURED	CONTAINS SHRINKAGE CRACKS, WHICH ARE FREQUENTLY FILLED WITH FINE SAND OR SILT. THE FISSURES ARE USUALLY NEAR VERTICAL IN ORIENTATION.
INTERBEDDED	COMPOSED OF ALTERNATING LAYERS OF DIFFERENT SOIL TYPES.
LAMINATED	COMPOSED OF THIN LAYERS OF VARYING COLOR AND TEXTURE.
NODULES	SECONDARY INCLUSIONS THAT APPEAR AS SMALL LUMPS ABOUT 0.1 TO 0.3 INCH IN DIAMETER.
PARTINGS	INCLUSION OF DIFFERENT MATERIAL LESS THAN ⅛ INCH THICK EXTENDING THROUGH THE SAMPLE.
POCKETS	INCLUSION OF DIFFERENT MATERIAL THAT IS SMALLER THAN THE DIAMETER OF THE SAMPLE.
SEAMS	INCLUSION OF DIFFERENT MATERIAL BETWEEN ⅛ AND 3 INCHES THICK, AND EXTENDS THROUGH THE SAMPLE.
SLICKENSIDED	HAS INCLINED PLANES OF WEAKNESS THAT ARE SLICK AND GLOSSY IN APPEARANCE. SLICKENSIDES ARE COMMONLY THOUGHT TO BE RANDOMLY ORIENTED.
STREAKS OR STAINS	STAINS OF LIMITED EXTENT THAT APPEAR AS SHORT STRIPES, SPOTS OR BLOTCHES.

ROCK TERMS	
BEDDING PLANE	A SURFACE PARALLEL TO THE SURFACE OF DEPOSITION, GENERALLY MARKED BY CHANGES IN COLOR OR GRAIN SIZE.
FRACTURE	A NATURAL BREAK IN ROCK ALONG WHICH NO DISPLACEMENT HAS OCCURED.
JOINT	A NATURAL BREAK ALONG WHICH NO DISPLACEMENT HAS OCCURED, WHICH GENERALLY INTERSECTS PRIMARY SURFACES.
% RECOVERY	THE RATIO OF TOTAL LENGTH OF RECOVERY TO THE TOTAL LENGTH OF CORE RUN, EXPRESSED AS A PERCENTAGE.
RQD - ROCK QUALITY DESIGNATION	THE RATIO OF TOTAL RECOVERED LENGTH OF FRAGMENTS LONGER THAN 4 INCHES TO THE TOTAL RUN LENGTH, EXPRESSED AS A PERCENTAGE.
WEATHERING	THE PROCESS BY WHICH ROCK IS BROKEN DOWN AND DECOMPOSED.

MOISTURE CONTENT

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH.
DAMP	SOME PERCEPTIBLE MOISTURE; BELOW OPTIMUM.
MOIST	NO VISIBLE WATER; NEAR OPTIMUM MOISTURE CONTENT.
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE.

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	POCKET PENETROMETER READING IN TONS/FT2	N-VALUE (BLOWS/FOOT)
VERY SOFT	0 TO 0.25	<2
SOFT	0.25 TO 0.5	2 TO 4
FIRM	0.5 TO 1.0	4 TO 8
STIFF	1.0 TO 2.0	8 TO 15
VERY STIFF	2.0 TO 4.0	15 TO 30
HARD	>4.0 OR 4.5+	>30

CLAY	SILT	SAND			GRAVEL		COBBLES	BOULDERS
		FINE	MEDIUM	COARSE	FINE	COARSE		
0.005mm		No.200	No.40	No.10	No.4	¾"	3"	12"

U.S. STANDARD SIEVE SIZE

RELATIVE DENSITY-GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM DENSE	11 TO 30
DENSE	31 TO 50
VERY DENSE	>50 OR 50+

REFERENCE: THE UNIFIED SOIL CLASSIFICATION SYSTEM, CORPS OF ENGINEERS, U.S. ARMY TECHNICAL MEMORANDUM NO. 3–357, VOL. 1 MARCH, 1953 (REVISED APRIL, 1960)

KEY
TO SYMBOLS AND TERMS

SKG
ENGINEERING

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-1

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			3/4/5			
		Color change from dark brown to brown at 2'.			4/4/6	13.6	17	
5		Color change from brown to tan at 4'.			5/7/8			
		lean CLAY (CL); tan, with sand				10.2	14	
10					10/13/16			
		sandy lean CLAY (CL); brown			11/13/18	10.8	8	
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- *1*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields San Angelo, Texas	B-2

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); brown			5/5/3	13.0	11	
		lean CLAY (CL); light brown, with gravel			6/9/9			
5					9/11/13			
		silty clayey SAND (SC-SM); brown, with gravel				12.7	5	
10					22/31/40			
		SILT (ML); brown, with sand						
15					13/17/16	20.6	10	
		Boring completed at a depth of 15'. Groundwater seepage was present at the bottom of the boring at the time of drilling activities.						
20								
25								
30								
35								

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/11/2026

Project: SAISD Central Athletic Fields San Angelo, Texas	B-3

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished: January 20, 2026**

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop: 30 inches**

Sampler: Shelby tube/2" split barrel sampler

NOTE: Sandstone rock noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			4/5/3			
					5/4/5	21.3	18	
5		Color change from dark brown to brown at 4'.			3/8/8			
		lean CLAY (CL); brown, with gravel						
		poorly cemented SAND STONE; brown						
10		silty clayey SAND (SC-SM); gray			50-4"	12.5	7	
		Color change from gray to brown at 14'.			12/13/11			
15		Boring completed at a depth of 15'. Groundwater was present at approximately 9' at the time of drilling activities.						
20								
25								
30								
35								

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-4

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		silty CLAY (CL); dark brown, with sand			3/3/3			
		Color change from dark brown to brown at 2'.			5/6/5			
5					6/6/6	7.7	7	
		Color change from brown to light brown at 6'.						
		sandy silty CLAY (CL); tan			9/12/13	12.1	6	
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.			14/16/19			
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- *4*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-5

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		Concrete - 5.5"						
		Base - 6", appeared pumped into subgrade			4/4/5			
		sandy silty CLAY (CL-ML); brown			4/4/5	13.7	7	
5		GWT not encountered			4/5/7			
		lean CLAY (CL); brown, with sand				11.4	16	
10					11/12/15			
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.			7/7/7			
20								
25								
30								
35								

SKG Engineering

25E1745

Plate A- 5

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-6

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Type	SPT	Laboratory: W%	PI	Pent. (psf)
0		sandy lean CLAY (CL); brown			7/9/9	9.0	9	
					13/9/8			
5		lean CLAY (CL); light brown, with sand			10/13/12			
						8.7	11	
10					9/12/14			
15					10/14/15			

GWT not encountered

Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.

20
25
30
35

SKG Engineering

25E1745

Plate A- *6*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-7

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			3/7/8			
					9/11/9			
5		Color change from dark brown to brown at 4'.			10/11/12	7.4	8	
		sandy lean CLAY (CL); brown			10/9/11			
10		sandy lean CLAY (CL); brown, with gravel						
15					15/19/23	10.4	11	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- 7

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-8

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		Concrete - 5"						
		Base - 4.5", appeared pumped into subgrade			5/4/4			
		lean CLAY (CL); dak brown, with sand			4/4/5			
		Clolor change from dark brown to brown at 2'.						
5		GWT not encountered			6/7/9	13.8	15	
10					10/12/15	13.9	10	
		sandy lean CLAY (CL); brown, with gravel						
15					17/24/31			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

SKG Engineering

25E1745

Plate A- *8*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-9

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			2/4/4			
					5/4/6			
		Color change from dark brown to brown at 3'.			5/7/10	15.4	12	
5								
		Color change from brown to light brown at 8'.			13/15/22			
10								
		sandy lean CLAY (CL); brown, with gravel						
15					12/21/17	9.3	8	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- 9

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-10

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			3/3/5			
					4/6/5			
5		sandy lean CLAY (CL); brown			4/4/5	15.3	17	
10					12/11/14			
		12" Gray seam at 12'.						
15					10/12/15	13.9	9	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- *10*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-11

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			2/4/2	19.8	14	
					4/5/4			
5		lean CLAY (CL); light brown, with sand			5/4/4			
						13.8	13	
10		sandy SILT (CL-ML); light brown			7/11/20	12.7	7	
		sandy lean CLAY (CL); brown, with gravel						
15		Color change from light brown to gray at 14'.			18/21/26			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

Date: 2/10/2026 File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log SuperLog CivilTech Software, USA www.civiltech.com

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-12

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			3/4/3			
		Color change from dark brown to brown at 2'.			4/4/6	17.7	13	
5		Color change from brown to light brown at 4'.			6/4/4			
		lean CLAY (CL); light brown, with sand			9/15/17	13.4	13	
15		Color change from light brown to gray at 14'.			9/12/22			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- *12*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-13

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			3/4/4	18.4	12	
		lean CLAY (CL); brown, with sand			4/4/4			
5		GWT not encountered			4/4/5			
						13.8	12	
10		12" gray seam at 11'.			5/4/14			
15		Color change from brown to light brown at 14'.			10/17/15			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

SKG Engineering

25E1745

Plate A- *13*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD Central Athletic Fields
San Angelo, Texas

B-14

Boring Location: Refer to the borehole location map

Date Started: January 20, 2026 | **Date Finished:** January 20, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory Pent. (psf)
0		sandy lean CLAY (CL); dark brown			/4/3			
		Color change from dark brown to brown at 2'.			3/4/7	16.9	11	
5					5/6/5			
10					9/12/10	14.7	14	
15					5/13/21			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering | 25E1745 | Plate A- *14*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1745 SAISD Athletic Projects Central-Softball_Baseball_Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Attachment D

Laboratory Results

SKG
ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT:	SAISD
PROJECT:	San Angelo Stadium
PROJECT #:	25-E-1745
DATE:	2/3/2026

Lab No.	Description			Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-014	B1	0	1.5	20	36	17	13.6	98.6	87.4	62.7
26-015	B1	6	7.5	9	23	14	10.2	99.1	93.4	71.4
26-016	B1	13.5	15	9	18	8	10.8	99.9	94.6	59.8
26-017	B2	0	1.5	13	25	11	13.0	93.3	86.0	58.7
26-018	B2	6	7.5	19	24	5	12.7	85.1	72.1	36.3
26-019	B2	13.5	15	24	34	10	20.6	95.0	86.1	80.2
26-020	B3	1.5	3	19	37	18	21.3	100.0	98.6	70.3
26-021	B3	8.5	10	11	18	7	12.5	91.0	69.7	47.2
26-022	B4	3.5	5	15	23	7	7.7	97.3	91.2	71.8
26-023	B4	8.5	10	13	19	6	12.1	98.7	90.0	65.7
26-024	B5	1.5	3	12	20	7	13.7	87.7	76.1	59.3
26-025	B5	6	7.5	10	26	16	11.4	99.8	97.8	79.7
26-026	B6	0	1.5	18	27	9	9.0	98.1	92.1	65.4
26-027	B6	6	7.5	15	26	11	8.7	99.5	96.7	80.3
26-028	B7	3.5	5	15	23	8	7.4	97.9	90.4	71.5
26-029	B7	13.5	15	14	25	11	10.4	92.5	74.9	53.5
26-030	B8	3.5	5	12	26	15	13.8	98.7	95.5	77.7
26-031	B8	8.5	10	15	25	10	13.9	100.0	96.3	76.0
26-032	B9	3.5	5	15	27	12	15.4	98.3	91.5	67.6
26-033	B9	13.5	15	13	22	8	9.3	88.0	80.6	61.3
26-034	B10	3.5	5	13	30	17	15.3	98.1	94.1	72.5
26-035	B10	13.5	15	12	21	9	13.9	96.5	91.5	54.6
26-036	B11	0	1.5	15	29	14	19.8	99.7	96.9	60.5
26-037	B11	6	7.5	14	27	13	13.8	99.6	95.2	76.5
26-038	B11	8.5	10	16	23	7	12.7	98.6	95.1	71.0
26-039	B12	1.5	3	23	37	13	17.7	97.9	94.5	64.0
26-040	B12	8.5	10	11	24	13	13.4	99.8	97.7	73.7
26-041	B13	0	1.5	16	28	12	18.4	99.7	93.9	55.5
26-042	B13	6	7.5	15	27	12	13.8	99.8	95.5	79.6
26-043	B14	1.5	3	22	33	11	16.9	99.9	98.1	67.8
26-044	B14	8.5	10	17	30	14	14.7	98.4	89.3	69.1

Average PL	15
Average LL	26
Average PI	11
Average % Clay	66.5

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SKG ENGINEERING, LLC

Geotechnical Report

Proposed Turf Football Field

Lincoln Middle School

255 Lake View Heroes Drive

San Angelo, Texas



2/10/2026
SKG Engineering, LLC
F-7608

PREPARED FOR:
Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

February 2026

25-E-1743

SKG
ENGINEERING, LLC
FIRM REGISTRATION NUMBER F-7608
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT

706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903

PHONE: 325.655.1288
FAX: 325.657.8189

February 10, 2026 25-E-1743

Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

Subject: Geotechnical Report, Proposed Turf Football Field
Lincoln Middle School, 255 Lake View Heroes Drive, San Angelo, Texas

Mr. Henry,

In accordance with your authorization, SKG Engineering has completed its geotechnical investigation at the referenced site. The work was done in accordance with the proposal dated the 22nd day of October, 2025. The data and results are included in the attached report.

If you have any questions or comments, or if we can be of any more service to you, please do not hesitate to contact us at (325) 655-1288.

Sincerely,
SKG Engineering, LLC

Caleb Miller, E.I.T.

Jason Clinton, P.E.



SKG Engineering, LLC
F-7608

Attachments - Geotechnical Report

CC: File

N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Geotechnical Report.doc

Table of Contents

1.0 Introduction **1**

1.1 Overview 1

2.0 Exploration **1**

2.1 Soil Borings 1
2.2 Laboratory Tests 1

3.0 Subsurface Investigation **1**

3.1 Site Geology 1
3.2 Subsurface Materials and Conditions 2
3.3 Subsurface Water 2

4.0 Site and Design Considerations **2**

4.1 Basic Considerations 2
4.2 Subsurface Moisture 2
4.3 Shrink/Swell Considerations 3
4.4 Turf Construction Recommendations 3
4.5 Seismic Design Criteria 4
4.6 Drainage 4
4.7 Underground Utilities 4
4.8 Trenching and Excavation Requirements 5

5.0 Site Preparation **5**

5.1 Subgrade 5
5.2 Engineered Fill 6
5.3 Flexible Base Material 6
5.4 Testing 6

6.0 Limitations **6**

Attachments

A – Field Conditions
B – Borehole Location Map
C – Logs of Boreholes
D – Laboratory Result

1.0 Introduction

1.1 Overview

The purpose of this exploration was to determine the subsurface materials and conditions beneath the existing football field and to establish the characteristics of these materials to recommend the criteria for subgrade preparation for the proposed artificial turf construction. Our understanding is that, as part of the turf installation, the contractor intends to install flat panel drains and perforated HDPE drainage piping terminating at a field collector line ditch to aid in surface runoff. A summary of field conditions is included in Attachment A.

2.0 Exploration

2.1 Soil Borings

The subsurface explorations were conducted on this site in January 2026. The boreholes were drilled to a maximum depth of 15', and the logs of these boreholes are included in this report. The drilling was performed with a truck-mounted air rotary drill rig. The drilling activities were performed in accordance with accepted methods and procedures. A total of 6 boreholes, designated B1 – B6, were conducted at the site to a maximum depth of 15’ within the area of the limits of the existing football field. A location map showing the approximate borehole locations is included in Attachment B.

Material samples were recovered at various depths for testing. The primary means of extracting subsurface soil samples was by the use of a 3" Shelby-tube and/or a 2" O.D. split barrel sampler. Split spoon sampling procedures were performed in accordance with ASTM D 1586 and Shelby tube samples were obtained in accordance with ASTM D 1587. The samples were extruded or removed in the field and placed in moisture-tight bags, and labeled. The samples were then transported to the laboratory for testing and visual evaluation by geotechnical personnel. The Unified Soil Classification System was utilized in accordance with ASTM D 2487 to verify field classifications. Refer to the logs of borings located in Attachment C for lithology, sample locations, and quantities.

2.2 Laboratory Tests

Tests were performed to determine engineering characteristics of the subsurface materials encountered, including, but not limited to, soil moisture content (ASTM D 2216), Atterberg Limits (ASTM D 4318), and sieve analysis. The test results can be found in Attachment D. Samples not tested in the laboratory will be retained for a maximum of 60 days and then discarded unless otherwise notified in writing prior to disposal of the samples.

3.0 Subsurface Investigation

3.1 Site Geology

Based on the location of the site on geological maps, it is our opinion that the predominant soil is the Slaughter-Cho complex (SkA). These particular soils are indicative of nearly level to gently sloping topography on smooth outwashed plains. These soils are well-drained and have slow surface runoff. Shrink-swell potential is expected to be low, and soil corrosivity to uncoated steel is expected to be high. Based on the location of the site and soil conditions, we do not foresee any adverse issues related to elevated sulfate concentrations.

3.2 Subsurface Materials and Conditions

The specific subsurface stratum encountered in each borehole is described in the logs of the boreholes included in Attachment C. The strata encountered at the boreholes conducted at the site can be considered a single stratum consisting of sand with varying amounts of clay and gravel seams that extends from a depth of 0' to the depth of the boreholes.

The subsurface stratum varies from those stated above as follows:

B5 – Sandy lean clay encountered at a depth of 2' to 6';
B6 – Lean clay was encountered at a depth of 0' to 3'.

3.3 Subsurface Water

There was no groundwater noted in any of the boreholes at the time of the investigation. The absence of groundwater noted does not express or imply that a groundwater study was performed, which is beyond the scope of this report. It should be noted that groundwater levels are subject to change based on seasonal and climatic conditions.

4.0 Site and Design Considerations

4.1 Basic Considerations

This report is intended to address design parameters and conditions for the proposed turf football field. The properties of in-situ soils, site characteristics, and the level of tolerable deflection should be carefully considered during the design phase. The proposed constructed turf surface should economically meet the function requirements and minimize differential movement, which could cause damage to the turf surface.

The site is currently developed with the existing school facilities, which include fencing, the existing grass field, sprinkler systems, and a paved track. Areas surrounding the existing field and track are primarily composed of natural vegetation. A storage container, a separate track system, and a jump pit were observed on the western portion of the site. Existing vegetation and irrigation utilities within the footprint of the proposed turf field should be removed in their entirety, and engineered fill should be used to fill the excavated areas. The fill should be placed and compacted in accordance with the Site Preparation section of this report.

The depth and hardness of the subsurface soil strata and gravel seams vary across the site. Routing of drainage should be addressed in the design phase of the project to ensure drainage is routed away and around the track pavement system, and localized ponding conditions on the field are avoided.

4.2 Subsurface Moisture

Water, in the form of a liquid, can rise upward through subsurface soils by capillary action, absorption, or gravitational pull well above the water table. Water changes from a liquid to a vapor as it evaporates. Water vapor will move from areas of high vapor pressure to areas of lower vapor pressure through diffusion. Diffusion is how water vapor distributes itself above the water table and occurs in both soils and concrete.

It is generally recognized that the relative humidity in the soils below a foundation will be close to 100%. Such a high relative humidity is reached even when the moisture content in the material below the foundation is found to be low. Without a capillary break or vapor barrier below the foundation, a high relative humidity or water source below a foundation can contribute moisture to the concrete. This can cause soluble alkalis in the concrete to enter into solution, thus raising the pH. Moisture-induced pH levels in concrete can be in the range of 10 to 12, while normal cured levels can be in the range of 7 to 9.

The impact of subsurface moisture can be reduced by the use of a vapor barrier or capillary break. A vapor barrier below the foundation is recommended when floor coverings or adhesives are sensitive to moisture or alkaline conditions. A vapor barrier can be in the form of poly vinyl sheets and a capillary break can be a sand or granular base. Verification of the vapor emission limitations from the foundation is vital to the selection of the proper vapor barrier system.

4.3 Shrink/Swell Considerations

Shrink/swell movements of the in-situ soils with changes in the soil moisture content are anticipated to be low at the site. The Potential Vertical Rise (PVR) was calculated to be on the order of 1" using the TXDOT PVR Method. The PVR was approximated using a potential active zone to fifteen feet below grade. The intent of this section is to provide depths for soil removal and replacement to achieve the PVR values noted below.

The PVR can be reduced to be on the order of 1/2" by providing a 2' layer of engineered fill below the foundation. When engineered fill is utilized to reduce the PVR, the continuous footings must bear at the same depth as the depth of the engineered fill or engineered fill should be placed below the grade beam to accomplish the required depth. Refer to the Engineered Fill section for placement and specifications.

The PVR and, moreover foundation movement are affected by many factors that influence its magnitude and rate of change. Factors include: seasonal variations in the moisture content between the interior and perimeter of the foundation, topographic relief, vegetative cover, confining pressures, fluctuating and shallow water tables, and the composition of underlying soils. In-situ clays can expand with the introduction of moisture and shrink with decreases in moisture.

4.4 Turf Construction Recommendations

We recommend removing and replacing in-situ soils on the field to a depth that will reduce the PVR to within the turf manufacturer's specifications or to accommodate the owner's tolerance for movement. Engineered fill or an approved fill should be used to bring the football field up to design grade. The placement of these materials shall be in accordance with the Site Preparation section of this report.

We have provided the following typical turf section for review. The owner should verify the turf section with the contractor installing the turf to verify the individual contractor's typical installation methods. We recommend a system consisting of a fine aggregate underneath the turf backing, followed by a base aggregate between the fine aggregate and engineered fill as per the manufacturer's specifications. The base aggregate shall be placed on a geotextile liner above the engineered fill with the field grade to provide for adequate drainage.

We recommend that an adequate drainage system be installed beneath the turf, with drainage lines daylighted off and away from the football field. We recommend that panel drains be wrapped in a geotextile fabric. Our understanding is that the contractor intends to install flat panel drains and perforated HDPE drainage piping that will terminate at a field collector line ditch.

4.5 Allowable Bearing Capacity

Ancillary structures in the vicinity of the field/geotechnical borings may be supported with spread footings where there is a suitable bearing stratum near the surface and where the potential for heave or settlement is within an acceptable range. Spread footings should be sized to support anticipated loads. We recommend bearing the spread footings a minimum of 1' below existing grade. The allowable bearing pressure exerted by spread footings on the in-situ soils from a depth of 1' to 4' is 2,300 psf.

4.6 Seismic Design Criteria

We have provided the seismic criteria for use in the structural design phase of the project. The seismic criteria is based on the 2021 International Building Code. The stratum referenced in this section refer to those described in the section Subsurface Materials and Conditions of this report. Please refer to the following table for seismic design parameters.

Mapped Spectral Response Acceleration					
Description	Site Class	Short Periods (S_s)	1 Second Period (S_1)	Site Coefficients	
				F_a	F_v
0' to 2'	D	0.09g	0.04g	1.6	2.4
2' to 15'	C	0.09g	0.04g	1.3	1.5

The International Building Code (IBC) requires a site soil profile determination extending a depth of 100 feet for seismic site classification. The scope of our geotechnical services requested does not include the 100-foot soil profile determination. Additional services can be performed if requested or required, since our scope terminated the boreholes at a depth of 15 feet. We would recommend utilizing a Seismic Site Classification of C for this site, based on the soil conditions to a depth of 15 feet.

4.7 Lateral Design Criteria

Recommended Lateral Design Criteria per Soil Type				
Soil Type	Lateral Bearing Pressure, to a maximum value at 15 feet (psf/ft)	Angle of Internal Friction (degrees)	Friction Factor (Between Concrete and Native Soil)	Approximate Unit Weight (pcf)
Lean Clay	100	28	0.25	107
Clayey sand	150	31	0.25	115
Silty Sand	150	34	0.25	117

4.8 Drainage

Positive drainage away from the foundation must be provided and maintained to reduce subsurface moisture variations. The minimum recommended slope away from the foundation is 5% for the first 10 feet for areas not covered by a sidewalk or pavement. Water shall not be permitted to pond on the finished site.

Due to the presence of in-situ clays, we recommend that, throughout the design and construction phase, an emphasis on maintaining a stable moisture content in the soils beneath and adjacent to the foundation be a major priority. Temporary and permanent control measures should be properly designed and installed to ensure positive drainage away from the foundation to maintain a quasi-stable soil moisture content.

4.9 Underground Utilities

The backfill material used for underground utility trenches that do not pass within 5' of the edge of a foundation should be on-site materials or imported clayey materials. We recommend not using a granular material to avoid the possibility of water migration through the trenches and possibly under foundation systems at the site.

For utility trenches that pass within 5' of the edge or pass underneath a foundation on the site, the backfill material used for the trench shall be a controlled low-strength material (CLSM) conforming to ACI 229 and ASTM D4832, with compressive strength between 50 and 10 psi at 28 days. The mixture shall be

self-leveling as per ASTM D6103, with a spread greater than or equal to 8” and shall be excavatable. The fill shall be placed without compaction. Utility lines must be anchored to resist buoyancy. Volume shall be verified by yield and density testing.

4.10 Exterior Flatwork Considerations

Engineered fill shall be used as needed to bring the flatwork to grade. Control joints should be cut at a maximum spacing of 6' for the length of the flatwork and expansion joints at a maximum spacing of 50'. We recommend installing flatwork as not to impound water adjacent to structural foundations.

4.11 Trenching and Excavation Requirements

The guidelines specified by the Occupational Safety and Health Administration (OSHA) should be followed for all excavation activities. The OSHA Standards (29 CFR Part 1926 revised, 1989) require all trenches that exceed 5' in depth to be shored or benched appropriately unless the soil stratum is “solid” rock.

The OSHA standards should be strictly adhered to for all excavation activities. The classification of the soils encountered at the site are Type C soils. The soil classifications are based on soils encountered in the boreholes conducted at the site. Refer to the following OSHA Table B-1 for slope requirements for excavations that are less than 20 feet in depth. Trenches in excess of 20 feet in depth should be designed by a registered professional engineer.

Maximum Allowable Slopes		
Stratum	Horizontal	Vertical
Stable Rock	Vertical	1
Type A	3/4	1
Type B	1	1
Type C	1-1/2	1

The above information is provided for temporary excavations. We recommend that any permanent trenches proposed for the site should have a minimum of 4:1 side slope. Any permanent trenches or channels should be lined with erosion control measures.

5.0 Site Preparation

5.1 Subgrade

Remove the top 6" of surface soils, any deleterious material, and in-situ soils as necessary to bring the finished floor elevation to design grade. The top 6" of material should then be scarified, moisture conditioned, and compacted to at least 95% of the Standard Proctor Density within 2% points of the optimum moisture content. Any soft or pumping areas are to be excavated and an engineered fill shall be used as backfill. Where existing slopes exceed ten horizontal to one vertical, the cross slope should be benched to provide a minimum of 6' bench width.

5.2 Engineered Fill

An approved select fill shall be used to bring the foundation system to grade. It shall be a cohesive soil, free of deleterious material, have a liquid limit of less than 40, and a plasticity index between 6 and 14. The select fill shall meet the following percent retained on sieve requirements: 2-1/2": 0-5%, No. 4: 40-80%, and No. 40: 50-85% or obtain approval from the geotechnical engineer. The fill should be installed in maximum eight-inch loose lifts and compacted to at least 95% of the Standard Proctor Density within 3% points of the optimum moisture content. Base consisting of TxDOT Type A, Grade 2 limestone will be accepted as engineered fill. Blended materials utilized for engineered fill will have to meet the specifications herein and be approved by the geotechnical engineer. If a blended material is approved, the contractor shall blend the material and have one stockpile for the entire project. Continuous blending of material throughout the duration of the project is not acceptable.

5.3 Flexible Base Material

Provide a compacted base consisting of Type A, Grade 2, limestone material below the foundation. Compact to 96% of the Standard Proctor Density within 2% points of the optimum moisture content. Material shall be placed in lifts not to exceed 8”. Alternative flexible base materials provided by a local supplier that do not meet these specifications shall be approved by the Engineer of record.

5.4 Testing

Test results of the engineered fill shall be submitted to the engineer of record for approval prior to incorporating it into the work. Arrange for a testing agency to verify flexible base, engineered fill, and subgrade compaction and moisture content. To confirm the compaction of the subgrade, engineered fill, and base, we recommend the more stringent of the three density tests for each lift placed or one density test for every 2,000 square feet of foundation area for each lift placed. The Standard Proctor Density shall be determined in accordance with ASTM D698.

6.0 Limitations

The recommendations presented in this report are based upon the information obtained from the borings performed at the site and from other information discussed in this report. This report is based upon the findings from the borings made and may not identify all subsurface variations that exist across the site. The nature and extent of such variations may not become evident until construction. If significant variations appear, contact SKG Engineering to further assess the design criteria and the recommendations contained within this report.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such conditions, the appropriate investigations should be performed.

No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are made, the recommendations contained in this report shall not be considered valid unless SKG Engineering reviews the changes and either verifies or modifies the conclusions of this report in writing.

Attachment A

Field Conditions

Summary of Field Conditions

The following field conditions were observed during the field exploration activities.

1. The site is developed with the current middle school facilities. The accessibility of some types of equipment should be verified in some of the areas of the site where multiple buildings are in the area.

2. The surface soil conditions on the site are generally sand that is considered a soft soil material. The soil conditions will probably hinder the mobilization of some types of construction equipment during rain events that saturate the soil.

3. Groundwater was not present at the time of drilling activities in any of the boreholes.

4. No rock was encountered in any of the boreholes conducted at the site.

5. Site soils are not anticipated to be of quality to be used for fill material under the foundation systems. We anticipate the site soils may be used for nonstructural applications, such as; landscape fill.

Attachment B

Borehole Location Map



SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

LINCOLN MIDDLE SCHOOL
TURF FOOTBALL FIELD
255 LAKE VIEW HEROES DRIVE
SAN ANGELO, TEXAS

BOREHOLE LOCATION MAP

DWG BY: AV	DWG. DATE: 01.28.2025
JOB NO. 25-E-1743	SHEET NO. BH1
SCALE: 1"=100'	

Attachment C

Logs of Boreholes

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE.	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
				GP	POORLY GRADED GRAVELS OR GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
				GC	CLAYEY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
	SILTS AND CLAYS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
				SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND–SILT MIXTURES.
				SC	CLAYEY SANDS, SAND–CLAY MIXTURES.
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE.	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50.			ML	INORGANIC SILTS AND VERY FINE SANDS, FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS AND WITH SLIGHT PLASTICITY.
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50.			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS.
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS.

SAMPLER TYPE



WATER LEVEL AT END OF DRILLING

WATER TABLE AT TIME OF DRILLING

SOIL TERMS	DESCRIPTION
BLOCKY	CONTAINS CRACKS OR FAILURE PLANES RESULTING IN ROUGH CUBES OF MATERIAL.
CALCAREOUS	CONTAINS APPRECIABLE QUANTITIES OF CALCIUM CARBONATE.
FISSURED	CONTAINS SHRINKAGE CRACKS, WHICH ARE FREQUENTLY FILLED WITH FINE SAND OR SILT. THE FISSURES ARE USUALLY NEAR VERTICAL IN ORIENTATION.
INTERBEDDED	COMPOSED OF ALTERNATING LAYERS OF DIFFERENT SOIL TYPES.
LAMINATED	COMPOSED OF THIN LAYERS OF VARYING COLOR AND TEXTURE.
NODULES	SECONDARY INCLUSIONS THAT APPEAR AS SMALL LUMPS ABOUT 0.1 TO 0.3 INCH IN DIAMETER.
PARTINGS	INCLUSION OF DIFFERENT MATERIAL LESS THAN ⅛ INCH THICK EXTENDING THROUGH THE SAMPLE.
POCKETS	INCLUSION OF DIFFERENT MATERIAL THAT IS SMALLER THAN THE DIAMETER OF THE SAMPLE.
SEAMS	INCLUSION OF DIFFERENT MATERIAL BETWEEN ⅛ AND 3 INCHES THICK, AND EXTENDS THROUGH THE SAMPLE.
SLICKENSIDED	HAS INCLINED PLANES OF WEAKNESS THAT ARE SLICK AND GLOSSY IN APPEARANCE. SLICKENSIDES ARE COMMONLY THOUGHT TO BE RANDOMLY ORIENTED.
STREAKS OR STAINS	STAINS OF LIMITED EXTENT THAT APPEAR AS SHORT STRIPES, SPOTS OR BLOTCHES.

ROCK TERMS	
BEDDING PLANE	A SURFACE PARALLEL TO THE SURFACE OF DEPOSITION, GENERALLY MARKED BY CHANGES IN COLOR OR GRAIN SIZE.
FRACTURE	A NATURAL BREAK IN ROCK ALONG WHICH NO DISPLACEMENT HAS OCCURED.
JOINT	A NATURAL BREAK ALONG WHICH NO DISPLACEMENT HAS OCCURED, WHICH GENERALLY INTERSECTS PRIMARY SURFACES.
% RECOVERY	THE RATIO OF TOTAL LENGTH OF RECOVERY TO THE TOTAL LENGTH OF CORE RUN, EXPRESSED AS A PERCENTAGE.
RQD - ROCK QUALITY DESIGNATION	THE RATIO OF TOTAL RECOVERED LENGTH OF FRAGMENTS LONGER THAN 4 INCHES TO THE TOTAL RUN LENGTH, EXPRESSED AS A PERCENTAGE.
WEATHERING	THE PROCESS BY WHICH ROCK IS BROKEN DOWN AND DECOMPOSED.

MOISTURE CONTENT

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH.
DAMP	SOME PERCEPTIBLE MOISTURE; BELOW OPTIMUM.
MOIST	NO VISIBLE WATER; NEAR OPTIMUM MOISTURE CONTENT.
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE.

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	POCKET PENETROMETER READING IN TONS/FT2	N-VALUE (BLOWS/FOOT)
VERY SOFT	0 TO 0.25	<2
SOFT	0.25 TO 0.5	2 TO 4
FIRM	0.5 TO 1.0	4 TO 8
STIFF	1.0 TO 2.0	8 TO 15
VERY STIFF	2.0 TO 4.0	15 TO 30
HARD	>4.0 OR 4.5+	>30

CLAY	SILT	SAND			GRAVEL		COBBLES	BOULDERS
		FINE	MEDIUM	COARSE	FINE	COARSE		

0.005mm No.200 No.40 No.10 No.4 ¾" 3" 12"

U.S. STANDARD SIEVE SIZE

RELATIVE DENSITY-GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM DENSE	11 TO 30
DENSE	31 TO 50
VERY DENSE	>50 OR 50+

REFERENCE: THE UNIFIED SOIL CLASSIFICATION SYSTEM, CORPS OF ENGINEERS, U.S. ARMY TECHNICAL MEMORANDUM NO. 3–357, VOL. 1 MARCH, 1953 (REVISED APRIL, 1960)

KEY
TO SYMBOLS AND TERMS

SKG
ENGINEERING

Project: SAISD - Lincoln Middle School
255 Lake View Heroes Drive, San Angelo,

B-1

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		silty clayey SAND (SC-SM); dark brown, with gravel			7/16/21			
		Color change to tan at 2'.			18/21/18	13.2	7	
5					12/15/29			
		clayey SAND (SC); tan			50-4"	18.6	12	
15					50-4"			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | **25-E-1743** | **Plate A-** *1*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD - Lincoln Middle School
255 Lake View Heroes Drive, San Angelo,

B-2

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished: January 21, 2026**

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop: 30 inches**

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
0		clayey SAND (SC); dark brown, with gravel			3/3/21	20.0	32	
		Color change to tan at 2'.			50-4"			
5					50-4"			
		silty SAND (SM); tan, with gravel				17.4	16	
10					50-3"			
		silty SAND (SM); tan						
15					50-3"	19.0	12	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD - Lincoln Middle School
255 Lake View Heroes Drive, San Angelo,

B-3

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Type	SPT	Laboratory: W%	PI	UU (psf)
0		clayey SAND (SC); dark brown, with gravel			8/12/14			
		Color change to tan at 2'.			50-4"	9.0	16	
5					50-3"			
		silty SAND (SM); tan				14.8	9	
10					50-4"			
15					50-4"			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD - Lincoln Middle School 255 Lake View Heroes Drive, San Angelo,	B-4

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished: January 21, 2026**

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop: 30 inches**

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples			Laboratory		
			Number	Type	SPT	W%	PI	UU (psf)
		Surface Elevation:						
0		silty clayey SAND (SC-SM); tan			50-4"	8.4	7	
					50-3"			
		clayey SAND (SC); tan, with gravel			50-4"	8.4	13	
5								
					50-4"			
10								
					50-4"			
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC	25-E-1743	Plate A- 4

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD - Lincoln Middle School
255 Lake View Heroes Drive, San Angelo,

B-5

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
0		sandy lean CLAY (CL); dark brown			3/3/4			
					4/11/17	17.8	7	
5		clayey SAND (SC); tan, with gravel			50-6"			
						13.5	8	
10					50-4"			
		clayey SAND (SC); tan						
15					50-4"	18.0	15	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1743 | Plate A- 5

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Project: SAISD - Lincoln Middle School 255 Lake View Heroes Drive, San Angelo,	B-6

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished: January 21, 2026**

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop: 30 inches**

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples			Laboratory		
			Number	Type	SPT	W%	PI	UU (psf)
		Surface Elevation:						
0		lean CLAY (CL); dark brown			4/5/5	14.9	26	
		clayey SAND (SC), brown, with gravel			50-6"			
5		Color change to tan at 3'.			50-6"	12.7	20	
10					50-3"			
15					50-3"			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1743 SAISD Athletic Projects Lincoln-Football\Geotech\Final Borehole logs.log Date: 2/10/2026

Attachment D

Laboratory Results

SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT:	SAISD
PROJECT:	Lincoln Middle School
PROJECT #:	25-E-1743
DATE:	2/6/2026

Lab No.	Description			Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-061	B1	1.5	3	16	23	7	13.2	84.3	64.6	48.4
26-062	B1	8.5	10	18	30	12	18.6	90.4	30.1	18.5
26-063	B2	1	1.5	27	59	32	20.0	81.2	63.0	48.3
26-064	B2	6	7.5	30	46	16	17.4	69.0	32.1	24.6
26-065	B2	14	15	29	41	12	19.0	87.6	40.7	28.8
26-066	B3	1.5	3	17	32	16	9.0	82.0	40.0	28.7
26-067	B3	6	7.5	25	34	9	14.8	85.6	55.3	42.3
26-068	B4	0	1.5	17	23	7	8.4	90.6	29.3	14.4
26-069	B4	3.5	5	18	31	13	8.4	77.3	22.1	19.0
26-070	B5	1.5	3	19	26	7	17.8	96.3	93.0	73.8
26-071	B5	6	7.5	17	25	8	13.5	84.9	44.5	33.0
26-072	B5	14	15	18	33	15	18.0	92.3	45.1	27.7
26-073	B6	0	1.5	17	43	26	14.9	99.5	98.8	88.1
26-074	B6	3.5	5	25	44	20	12.7	85.9	58.1	47.1

Average PL	21
Average LL	35
Average PI	14
Average % Clay	38.8

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SKG ENGINEERING, LLC

Geotechnical Report

Proposed Lone Star Middle School

Athletic Facilities Updates

2500 Sherwood Way

San Angelo, Texas



2/11/2026
SKG Engineering, LLC
F-7608

PREPARED FOR:
Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

February 2026

25-E-1744

SKG
ENGINEERING, LLC
FIRM REGISTRATION NUMBER F-7608
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT

706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903

PHONE: 325.655.1288
FAX: 325.657.8189

February 11, 2026 25-E-1744

Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

Subject: Geotechnical Report, Proposed Lone Star Middle School Athletic Facility Updates, 2500 Sherwood Way, San Angelo, Texas

Mr. Henry,

In accordance with your authorization, SKG Engineering has completed its geotechnical investigation at the referenced site. The work was done in accordance with the proposal dated the 22nd day of October, 2025. The data and results are included in the attached report.

If you have any questions or comments, or if we can be of any more service to you, please do not hesitate to contact us at (325) 655-1288.

Sincerely,
SKG Engineering, LLC

Caleb Miller, E.I.T.

Jason Clinton, P.E.



SKG Engineering, LLC
F-7608

Attachments - Geotechnical Report

CC: File

N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Geotechnical Report.doc

Table of Contents

1.0 Introduction **1**

1.1 Overview 1

2.0 Exploration **1**

2.1 Soil Borings 1
2.2 Laboratory Tests 1

3.0 Subsurface Investigation **1**

3.1 Site Geology 1
3.2 Subsurface Materials and Conditions 1
3.3 Subsurface Water 2

4.0 Site and Design Considerations **2**

4.1 Basic Considerations 2
4.2 Subsurface Moisture 2
4.3 Shrink/Swell Considerations 3
4.4 Synthetic Turf 3
4.4.1 Synthetic Turf Recommendations 3
4.5 Allowable Bearing Capacity 3
4.6 Lateral Design Criteria 4
4.7 Backfill Material and Compaction 4
4.8 Drainage 4
4.9 Underground Utilities 4
4.10 Exterior Flatwork Considerations 4
4.11 Trenching and Excavation Requirements 5

5.0 Site Preparation **5**

5.1 Subgrade 5
5.2 Engineered Fill 5
5.3 Flexible Base Material 5
5.4 Testing 6

6.0 Limitations **6**

Attachments

A – Field Conditions
B – Borehole Location Map
C – Logs of Boreholes
D – Laboratory Result

1.0 Introduction

1.1 Overview

The purpose of this exploration was to determine subsurface materials and conditions and to establish the characteristics of these materials in order to recommend the criteria by which to establish subgrade recommendations for the proposed installation of artificial turf and a subsurface drainage system for the football field at Lone Star Middle School. A summary of field conditions is included in Attachment A.

2.0 Exploration

2.1 Soil Borings

The subsurface explorations were conducted on this site in January 2026. The boreholes were drilled to a maximum depth of 15', and the logs of these boreholes are included in this report. The drilling was performed with a truck mounted air rotary drill rig. The drilling activities were performed in accordance with accepted methods and procedures. A total of 7 boreholes, designated B1 – B7 were conducted at the site. B1 – B7 were conducted to a maximum depth of 15’ within the area of the existing football field.

Material samples were recovered at various depths for testing. The primary means of extracting subsurface soil samples was by the use of a 3" Shelby-tube and/or a 2" O.D. split barrel sampler. Split spoon sampling procedures were performed in accordance with ASTM D 1586 and Shelby tube samples were obtained in accordance with ASTM D 1587. The samples were extruded or removed in the field and placed in moisture tight bags and labeled. The samples were then transported to the laboratory for testing and visual evaluation by geotechnical personnel. The Unified Soil Classification System was utilized in accordance with ASTM D 2487 to verify field classifications. Refer to the logs of borings located in Attachment C for lithology, sample locations and quantities.

2.2 Laboratory Tests

Tests were performed to determine engineering characteristics of the subsurface materials encountered, including, but not limited to, soil moisture content (ASTM D 2216), Atterberg Limits (ASTM D 4318), and sieve analysis. The test results can be found in Attachment D. Samples not tested in the laboratory will be retained for a maximum of 60 days and then discarded unless otherwise notified in writing prior to disposal of the samples.

3.0 Subsurface Investigation

3.1 Site Geology

Based on the location of the site on geological maps, it is our opinion that the predominate soil is the Cho-Urban land Complex (KuD). These particular soils are indicative of nearly level to gently sloping topography on smooth outwashed plains. These soils are well drained and have medium surface runoff. Shrink-swell potential is expected to be moderate and soil corrosivity to uncoated steel is expected to be high. Based on the location of the site and soil conditions we do not foresee any adverse issues related to elevated sulfate concentrations.

3.2 Subsurface Materials and Conditions

The specific subsurface stratum encountered in each borehole is described in the logs of boreholes included in Attachment C. The strata encountered at the boreholes conducted at the site can be divided into two major strata. The first stratum is a layer of lean clay that extends from a depth of 0' to 8'. The second soil stratum consists of clayey sand with varying amounts of gravel that extends from a depth of 8' to the depth of the boreholes.

The subsurface stratum varies from those stated above as follows:

B3 – Clayey sand encountered from a depth of 3’ to 6’;
B3 – Lean clay encountered from a depth of 8’ to the depth of the borehole;
B4 – Lean clay encountered from a depth of 8’ to the depth of the borehole;
B5 – Silty sand encountered from a depth of 2’ to 8’;
B6 – Lean clay encountered from a depth of 8’ to 13’;
B7 – Lean clay encountered from a depth of 8’ to 11’.

3.3 Subsurface Water

There was no groundwater noted in any of the boreholes at the time of the investigation. The absence of groundwater noted does not express or imply a groundwater study was performed, which is beyond the scope of this report. It should be noted that groundwater levels are subject to change based on seasonal and climatic conditions.

4.0 Site and Design Considerations

4.1 Basic Considerations

The properties of in-situ soils, site characteristics, and the level of tolerable deflection should be carefully considered during the design phase. A foundation should economically meet the functional requirements of the structure and minimize differential movement of the structure that could cause damage.

The site is developed with the existing middle school facilities, which include but are not limited to fencing, the existing field, buildings, and both above ground and subsurface utilities. Any of the existing development and vegetation that fall within the footprint of the proposed development additions should be removed in their entirety, and engineered fill should be used to fill the excavated areas. The fill should be placed and compacted in accordance with the Site Preparation section of this report.

The depth and thickness of the gravel strata present varies across the site. The gravel strata was encountered at depths of 8’ to the depth of the boreholes below the existing surface in some of the boreholes conducted within the area of the proposed improvements. The gravel noted may hinder proposed excavation activities at the site. The variations should be noted by the engineer and contractor for all aspects of design and construction.

Routing of drainage should be addressed in the design phase of the project to ensure drainage is routed away and around proposed foundation systems.

4.2 Subsurface Moisture

Water, in the form of a liquid, can rise upward through subsurface soils by capillary action, absorption, or gravitational pull well above the water table. Water changes from a liquid to a vapor as it evaporates. Water vapor will move from areas of high vapor pressure to a lower vapor pressure through diffusion. Diffusion is how water vapor distributes itself above the water table and occurs in both soils and concrete.

It is generally recognized that the relative humidity in the soils below a foundation will be close to 100%. Such a high relative humidity is reached even when the moisture content in the material below the foundation is found to be low. Without a capillary break or vapor barrier below the foundation, a high relative humidity or water source below a foundation can contribute moisture to the concrete. This can cause soluble alkalis in the concrete to enter into solution, thus raising the pH. Moisture-induced pH levels in concrete can be in the range of 10 to 12, while normal cured levels can be in the range of 7 to 9.

The impact of subsurface moisture can be reduced by the use of a vapor barrier or capillary break. A vapor barrier below the foundation is recommended when floor coverings or adhesives are sensitive to

moisture or alkaline conditions. A vapor barrier can be in the form of polyvinyl sheets, and a capillary break can be a sand or granular base. Verification of the vapor emission limitations from the foundation is vital to the selection of the proper vapor barrier system.

4.3 Shrink/Swell Considerations

Shrink/swell movements of the in-situ soils with changes in the soil moisture content are anticipated to be low at the site. The Potential Vertical Rise (PVR) was calculated to be on the order of ¾" using the TXDOT PVR Method. The PVR was approximated using a potential active zone to fifteen feet below grade. The intent of this section is to provide depths for soil removal and replacement to achieve the PVR values noted below. No final elevations were provided at the time of this report and consideration of specific elevations would have to be reviewed when additional information is available.

The PVR can be reduced to be on the order of ½" by providing a 3' layer of engineered fill below the foundation. When engineered fill is utilized to reduce the PVR, the continuous footings must bear at the same depth as the depth of the engineered fill or engineered fill should be placed below the grade beam to accomplish the required depth. Refer to the Engineered Fill section for placement and specifications.

The PVR and moreover foundation movement is effected by many factors that influence its magnitude and rate of change. Factors include: seasonal variations in the moisture content between the interior and perimeter of the foundation, topographic relief, vegetative cover, confining pressures, fluctuating and shallow water tables, and the composition of underlying soils. In-situ clays can expand with the introduction of moisture and shrink with decreases in moisture.

4.4 Synthetic Turf

4.4.1 Synthetic Turf Recommendations

We recommend removing and replacing in-situ soils on the fields to a depth that will reduce the PVR to within the turf manufacturer’s specifications or to accommodate the owner’s tolerance for movement. Engineered fill or an approved fill should be used to bring the fields up to design grade. The placement of these materials shall be in accordance with the Site Preparation section of this report.

We have provided the following typical turf section for review. The owner should verify the turf section with the contractor installing the turf to ensure it aligns with the contractor’s typical installation methods. We recommend a system consisting of a fine aggregate underneath the turf backing, followed by a base aggregate between the fine aggregate and engineered fill as per the manufacturer's specification. The base aggregate shall be placed on a geotextile liner above the engineered fill with the field graded to provide for adequate drainage.

We recommend that an adequate drainage system be installed beneath the turf, with drainage lines daylighted off and away from the fields. We recommend that panel drains be wrapped in a geotextile fabric. Our understanding is that the contractor intends to install flat panel drains and perforated HDPE drainage piping that will terminate at a field collector line ditch.

4.5 Allowable Bearing Capacity

Ancillary structures in the vicinity of the field/geotechnical borings may be supported with spread footings where there is a suitable bearing stratum near the surface and where the potential for heave or settlement is within an acceptable range. Spread footings should be sized to support anticipated loads. We recommend bearing the spread footings a minimum of 1' below existing grade. The allowable bearing pressure exerted by spread footings on the in-situ soils from a depth of 1’ to 4’ is 2,000 psf

4.6 Lateral Design Criteria

Recommended Lateral Design Criteria per Soil Type				
Soil Type	Lateral Bearing Pressure, to a maximum value at 15 feet (psf/ft)	Angle of Internal Friction (degrees)	Friction Factor (Between Concrete and Native Soil)	Approximate Unit Weight (pcf)
Lean Clay	100	28	0.25	107
Clayey sand	150	31	0.25	115
Silty Sand	150	34	0.25	117

4.7 Backfill Material and Compaction

Retaining walls should be backfilled with a 12" width of pea gravel for the height of the wall. Backfill behind the pea gravel should be a non-expansive fill material with a maximum particle size of 4" nominal diameter, three-quarters of the wall height, and a clay cap on the top quarter of the wall height. We recommend providing weep holes along the bottom of the retaining wall height at 10' on center maximum spacing for the length of the wall. We recommend placing fill in a maximum 8" loose lifts and compacted to between 93% to 97% of the Standard Proctor Density. Compaction tests should be performed on each lift.

4.8 Drainage

Positive drainage away from the foundation must be provided and maintained to reduce subsurface moisture variations. The minimum recommended slope away from the foundation is 5% for the first 10 feet for areas not covered by a sidewalk or pavement. Water shall not be permitted to pond on the finished site.

Due to the presence of in-situ clays, we recommend that, throughout the design and construction phase, an emphasis on maintaining a stable moisture content in the soils beneath and adjacent to the foundation be a major priority. Temporary and permanent control measures should be properly designed and installed to ensure positive drainage away from the foundation to maintain a quasi-stable soil moisture content. The measures include, but are not limited to, gutters, sprinkler systems, and a site grading plan.

4.9 Underground Utilities

The backfill material used for underground utility trenches that do not pass within 5’ of the edge of a foundation should be on-site materials or imported clayey materials. We recommend not using granular material to avoid the possibility of water migration through the trenches and possibly under foundation systems at the site.

For utility trenches that pass within 5’ of the edge or pass underneath a foundation on the site, the backfill material used for the trench shall be a controlled low-strength material (CLSM) conforming to ACI 229 and ASTM D4832, with compressive strength between 50 and 10 psi at 28 days. The mixture shall be self-leveling as per ASTM D6103, with a spread greater than or equal to 8” and shall be excavatable. The fill shall be placed without compaction. Utility lines must be anchored to resist buoyancy. Volume shall be verified by yield and density testing.

4.10 Exterior Flatwork Considerations

Engineered fill shall be used as needed to bring the flatwork to grade. Control joints should be cut at a maximum spacing of 6' for the length of the flatwork and expansion joints at a maximum spacing of 50'. We recommend installing flatwork as not to impound water adjacent to structural foundations.

4.11 Trenching and Excavation Requirements

The guidelines specified by the Occupational Safety and Health Administration (OSHA) should be followed for all excavation activities. The OSHA Standards (29 CFR Part 1926 revised, 1989) require all trenches that exceed 5' in depth to be shored or benched appropriately unless the soil stratum is “solid” rock.

The OSHA standards should be strictly adhered to for all excavation activities. The classification of the soils encountered at the site is Type C soils. The soil classifications are based on soils encountered in the boreholes conducted at the site. Refer to the following OSHA Table B-1 for slope requirements for excavations that are less than 20 feet in depth. Trenches in excess of 20 feet in depth should be designed by a registered professional engineer.

Maximum Allowable Slopes		
Stratum	Horizontal	Vertical
Stable Rock	Vertical	1
Type A	3/4	1
Type B	1	1
Type C	1-1/2	1

The above information is provided for temporary excavations. We recommend that any permanent trenches proposed for the site should have a minimum of 4:1 side slope. Any permanent trenches or channels should be lined with erosion control measures.

5.0 Site Preparation

5.1 Subgrade

Remove the top 6" of surface soils, any deleterious material, and in-situ soils as necessary to bring the finished floor elevation to design grade. The top 6" of material should then be scarified, moisture conditioned, and compacted to at least 95% of the Standard Proctor Density within 2% points of the optimum moisture content. Any soft or pumping areas are to be excavated, and an engineered fill shall be used as backfill. Where existing slopes exceed ten horizontal to one vertical, the cross slope should be benched to provide a minimum of 6' bench width.

5.2 Engineered Fill

An approved select fill shall be used to bring the foundation system to grade. It shall be a cohesive soil, free of deleterious material, have a liquid limit of less than 40, and a plasticity index between 6 and 14. The select fill shall meet the following percent retained on sieve requirements: 2-1/2": 0-5%, No. 4: 40-80%, and No. 40: 50-85% or obtain approval from the geotechnical engineer. The fill should be installed in maximum eight-inch loose lifts and compacted to at least 95% of the Standard Proctor Density within 3% points of the optimum moisture content. Base consisting of TxDOT Type A, Grade 2 limestone will be accepted as engineered fill. Blended materials utilized for engineered fill will have to meet the specifications herein and be approved by the geotechnical engineer. If a blended material is approved, the contractor shall blend the material and have one stockpile for the entire project. Continuous blending of material throughout the duration of the project is not acceptable.

5.3 Flexible Base Material

Provide compacted base consisting of Type A, Grade 2, limestone material below the foundation. Compact to 96% of the Standard Proctor Density within 2% points of the optimum moisture content. Material shall be placed in lifts not to exceed 8”. Alternative flexible base materials provided by a local supplier which do not meet theses specifications shall be approved by the Engineer of record.

5.4 Testing

Test results of the engineered fill shall be submitted to the engineer of record for approval prior to incorporating into the work. Arrange for a testing agency to verify flexible base, engineered fill, and subgrade compaction and moisture content. To confirm the compaction of the subgrade, engineered fill, and base we recommend the more stringent of three density tests for each lift placed or one density test for every 2,000 square feet of foundation area for each lift placed. The Standard Proctor Density shall be determined in accordance with ASTM D698.

6.0 Limitations

The recommendations presented in this report are based upon the information obtained from the borings performed at the site and from other information discussed in this report. This report is based upon the findings from the borings made and may not identify all subsurface variations which exist across the site. The nature and extent of such variations may not become evident until construction. If significant variations appear, contact SKG Engineering to further access the design criteria and the recommendations contained within this report.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such conditions, the appropriate investigations should be performed.

No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are made, the recommendations contained in this report shall not be considered valid unless SKG Engineering reviews the changes and either verifies or modifies the conclusions of this report in writing.

Attachment A

Field Conditions

Summary of Field Conditions

The following field conditions were observed during the field exploration activities.

1. The site is developed with the current Lone Star Middle School facilities. The accessibility of some types of equipment should be verified in some of the areas of the site where multiple buildings are in the area.

2. The surface soil conditions on the site are generally clay that is considered a soft soil material. The soil conditions will probably prove to hinder mobilization of some types of construction equipment during rain events that saturate the soils.

3. Groundwater was not present at the time of drilling activities in any of the boreholes.

4. No rock was encountered in any of the boreholes conducted at the site.

5. Site soils may be of quality to be used for engineered fill material under the foundation systems if it conforms to the specifications for engineered fill and installed in accordance with the SITE PREPARATION section of this report. Rubble, debris and deleterious material should be removed from the site soils if used under foundation systems.

Attachment B

Borehole Location Map



SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

SAISD ATHLETIC PROJECTS
LONESTAR MIDDLE SCHOOL
SAN ANGELO, TEXAS

BOREHOLE LOCATION MAP

DWG BY: OD	DWG. DATE: 2.9.2026
JOB NO. 25-E-1744	SHEET NO. BH1
SCALE: 1"=100'	

Attachment C

Logs of Boreholes

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE.	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
				GP	POORLY GRADED GRAVELS OR GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
				GC	CLAYEY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
	SILTS AND CLAYS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
				SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND–SILT MIXTURES.
				SC	CLAYEY SANDS, SAND–CLAY MIXTURES.
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE.	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50.			ML	INORGANIC SILTS AND VERY FINE SANDS, FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS AND WITH SLIGHT PLASTICITY.
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50.			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS.
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS.

SAMPLER TYPE



SOIL TERMS	DESCRIPTION
BLOCKY	CONTAINS CRACKS OR FAILURE PLANES RESULTING IN ROUGH CUBES OF MATERIAL.
CALCAREOUS	CONTAINS APPRECIABLE QUANTITIES OF CALCIUM CARBONATE.
FISSURED	CONTAINS SHRINKAGE CRACKS, WHICH ARE FREQUENTLY FILLED WITH FINE SAND OR SILT. THE FISSURES ARE USUALLY NEAR VERTICAL IN ORIENTATION.
INTERBEDDED	COMPOSED OF ALTERNATING LAYERS OF DIFFERENT SOIL TYPES.
LAMINATED	COMPOSED OF THIN LAYERS OF VARYING COLOR AND TEXTURE.
NODULES	SECONDARY INCLUSIONS THAT APPEAR AS SMALL LUMPS ABOUT 0.1 TO 0.3 INCH IN DIAMETER.
PARTINGS	INCLUSION OF DIFFERENT MATERIAL LESS THAN ⅛ INCH THICK EXTENDING THROUGH THE SAMPLE.
POCKETS	INCLUSION OF DIFFERENT MATERIAL THAT IS SMALLER THAN THE DIAMETER OF THE SAMPLE.
SEAMS	INCLUSION OF DIFFERENT MATERIAL BETWEEN ⅛ AND 3 INCHES THICK, AND EXTENDS THROUGH THE SAMPLE.
SLICKENSIDED	HAS INCLINED PLANES OF WEAKNESS THAT ARE SLICK AND GLOSSY IN APPEARANCE. SLICKENSIDES ARE COMMONLY THOUGHT TO BE RANDOMLY ORIENTED.
STREAKS OR STAINS	STAINS OF LIMITED EXTENT THAT APPEAR AS SHORT STRIPES, SPOTS OR BLOTCHES.

ROCK TERMS	
BEDDING PLANE	A SURFACE PARALLEL TO THE SURFACE OF DEPOSITION, GENERALLY MARKED BY CHANGES IN COLOR OR GRAIN SIZE.
FRACTURE	A NATURAL BREAK IN ROCK ALONG WHICH NO DISPLACEMENT HAS OCCURED.
JOINT	A NATURAL BREAK ALONG WHICH NO DISPLACEMENT HAS OCCURED, WHICH GENERALLY INTERSECTS PRIMARY SURFACES.
% RECOVERY	THE RATIO OF TOTAL LENGTH OF RECOVERY TO THE TOTAL LENGTH OF CORE RUN, EXPRESSED AS A PERCENTAGE.
RQD - ROCK QUALITY DESIGNATION	THE RATIO OF TOTAL RECOVERED LENGTH OF FRAGMENTS LONGER THAN 4 INCHES TO THE TOTAL RUN LENGTH, EXPRESSED AS A PERCENTAGE.
WEATHERING	THE PROCESS BY WHICH ROCK IS BROKEN DOWN AND DECOMPOSED.

MOISTURE CONTENT

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH.
DAMP	SOME PERCEPTIBLE MOISTURE; BELOW OPTIMUM.
MOIST	NO VISIBLE WATER; NEAR OPTIMUM MOISTURE CONTENT.
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE.

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	POCKET PENETROMETER READING IN TONS/FT2	N-VALUE (BLOWS/FOOT)
VERY SOFT	0 TO 0.25	<2
SOFT	0.25 TO 0.5	2 TO 4
FIRM	0.5 TO 1.0	4 TO 8
STIFF	1.0 TO 2.0	8 TO 15
VERY STIFF	2.0 TO 4.0	15 TO 30
HARD	>4.0 OR 4.5+	>30

CLAY	SILT	SAND			GRAVEL		COBBLES	BOULDERS
		FINE	MEDIUM	COARSE	FINE	COARSE		
0.005mm		No.200	No.40	No.10	No.4	¾"	3"	12"

U.S. STANDARD SIEVE SIZE

RELATIVE DENSITY-GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM DENSE	11 TO 30
DENSE	31 TO 50
VERY DENSE	>50 OR 50+

REFERENCE: THE UNIFIED SOIL CLASSIFICATION SYSTEM, CORPS OF ENGINEERS, U.S. ARMY TECHNICAL MEMORANDUM NO. 3–357, VOL. 1 MARCH, 1953 (REVISED APRIL, 1960)

KEY
TO SYMBOLS AND TERMS

SKG
ENGINEERING

Project: SAISD LoneStar Football Field San Angelo, Texas	B-1

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			4/5/5			
					4/4/5	17.7	20	
5					6/9/6			
		sandy lean CLAY (CL); brown				17.5	15	
		clayey SAND (SC); tan, with gravel			15/17/12			
10								
15					18/21/29	8.8	20	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/9/2026

Project: SAISD LoneStar Football Field San Angelo, Texas	B-2

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			4/3/5			
					5/6/8			
5					6/9/11	18.7	25	
10		clayey SAND (SC); brown, with gravel			15/16/18	13.9	15	
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.			18/18/20			
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/9/2026

Project: SAISD LoneStar Football Field San Angelo, Texas	B-3

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		sandy lean CLAY (CL); dark brown			3/3/4	17.7	12	
		clayey SAND (SC); brown			6/8/22			
5					17/11/14			
		lean CLAY (CL); tan, with sand						
10		gravelly lean CLAY (CL); tan, with sand			7/10/19	11.8	18	
15					16/24/25			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/11/2026

Project: SAISD LoneStar Football Field San Angelo, Texas	B-4

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 | **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Depth (feet)	Lith-ology	Material Description	Samples			Laboratory		
			Number	Type	SPT	W%	PI	Pent. (psf)
		Surface Elevation:						
0		lean CLAY (CL); dark brown			4/3/4			
					6/6/7	23.4	14	
5					7/10/9			
		Color change from dark brown to brown at 6'.						
10		Color change from brown to tan at 9'.			19/20/19	15.2	14	
		lean CLAY (CL); brown, with gravel						
15					18/23/27			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/9/2026

SKG Engineering	25E1744	Plate A- 4

Project: SAISD LoneStar Football Field San Angelo, Texas	B-5

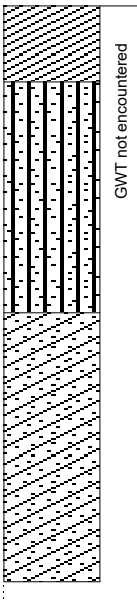
Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler



Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
		Surface Elevation:						
0		lean CLAY (CL); dark brown			4/3/7			
		silty SAND (SM); tan, with gravel			11/32/22	14.6	2	
5					7/11/12			
		clayey SAND (SC); tan, with gravel			11/14/15	14.3	18	
10								
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.			13/15/16			
20								
25								
30								
35								

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/9/2026

Project: SAISD LoneStar Football Field San Angelo, Texas	B-6

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown			4/3/3			
					8/8/7			
5		gravelly lean CLAY (CL); tan, with sand			5/8/10	16.4	13	
10					21/20/24			
15		clayey SAND (SC); brown, with gravel			23/27/29	6.5	19	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/11/2026

Project: SAISD LoneStar Football Field San Angelo, Texas	B-7

Boring Location: Refer to the borehole location map

Date Started: January 21, 2026 **Date Finished:** January 21, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

Surface Elevation:

Depth (feet)	Lithology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: Pent. (psf)
0		lean CLAY (CL); dark brown, with sand			3/4/4	22.5	24	
					4/11/13			
5					7/9/8			
		lean CLAY (CL); brown				15.7	13	
10					13/15/14			
		clayey SAND (SC); brown, with gravel						
15					19/25/29	5.9	17	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1744 SAISD Athletic Projects LoneStar-Football\Geotech\Final Borehole logs.log Date: 2/9/2026

Attachment D

Laboratory Results

SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT: SAISD
PROJECT: Lonestar Middle School
PROJECT #: 25-E-1744
DATE: 2/6/2026

Lab No.	Description			Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-045	B1	1.5	3	14	33	20	17.7	91.6	84.7	71.6
26-046	B1	6	7.5	16	31	15	17.5	88.5	67.5	59.3
26-047	B1	13.5	15	21	42	20	8.8	81.8	26.9	18.3
26-048	B2	3.5	5	22	48	25	18.7	99.7	98.1	83.9
26-049	B2	8.5	10	28	33	15	13.9	64.9	46.9	42.9
26-050	B3	0	1.5	19	32	12	17.7	87.3	78.5	66.9
26-051	B3	8.5	10	15	33	18	11.8	74.1	54.5	51.8
26-052	B4	1.5	3	22	36	14	23.4	99.8	98.4	86.7
26-053	B4	8.5	10	23	37	14	15.2	99.7	96.9	92.5
26-054	B5	1.5	3	16	18	2	14.6	68.6	39.0	26.2
26-055	B5	8.5	10	15	34	18	14.3	75.1	47.0	37.6
26-056	B6	3.5	5	15	18	13	16.4	74.8	58.3	50.3
26-057	B6	13.5	15	15	34	19	6.5	79.8	26.5	18.5
26-058	B7	0	1.5	19	43	24	22.5	97.8	94.5	78.9
26-059	B7	6	7.5	17	30	13	15.7	98.1	95.5	89.8
26-060	B7	13.5	15	22	39	17	5.9	58.2	21.7	17.7

Average PL	19
Average LL	34
Average PI	16
Average % Clay	55.8

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SKG ENGINEERING, LLC

Geotechnical Report

Lake View High School:

Proposed Athletic Facilities Updates

900 East 43rd Street

San Angleo, Texas



2/20/2026
SKG Engineering, LLC
F-7608

PREPARED FOR:
Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

February 2026

25-E-1742

SKG
ENGINEERING, LLC
FIRM REGISTRATION NUMBER F-7608
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

February 20, 2026 25-E-1742

Mr. Jason Henry
San Angelo ISD
1621 University Avenue
San Angelo, Texas 76904

Subject: Geotechnical Report, Lake View High School: Proposed Athletic Facilities Updates
900 East 43rd Street, San Angelo, Texas

Mr. Henry,

In accordance with your authorization, SKG Engineering has completed its geotechnical investigation at the referenced site. The work was done in accordance with the proposal dated the 22nd day of October, 2026. The data and results are included in the attached report.

If you have any questions or comments, or if we can be of any more service to you, please do not hesitate to contact us at (325) 655-1288.

Sincerely,
SKG Engineering, LLC

Caleb Miller, E.I.T. Jason Clinton, P.E.



SKG Engineering, LLC
F-7608

Attachments - Geotechnical Report

CC: File

N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Geotechnical Report.doc

Table of Contents

1.0 Introduction **1**

1.1 Overview 1

2.0 Exploration **1**

2.1 Soil Borings 1
2.2 Laboratory Tests 1

3.0 Subsurface Investigation **2**

3.1 Site Geology 2
3.2 Subsurface Materials and Conditions 2
3.3 Subsurface Water 2

4.0 Site and Design Considerations **2**

4.1 Basic Considerations 2
4.2 Subsurface Moisture 3
4.3 Shrink/Swell Considerations 3
4.4 Foundation System and Recommendations 4
4.4.1 Grade Supported Foundation 4
4.4.2 Drilled Piers 5
4.4.3 Uplift Loads 6
4.5 Seismic Design Criteria 6
4.6 Lateral Design Criteria 7
4.7 Backfill Material and Compaction 7
4.8 Drainage 7
4.9 Underground Utilities 7
4.10 Exterior Flatwork Considerations 8
4.11 Trenching and Excavation Requirements 8

5.0 Site Preparation **8**

5.1 Subgrade 8
5.2 Engineered Fill 9
5.3 Flexible Base Material 9
5.4 Testing 9

6.0 Pavement Design and Criteria **9**

6.1 Considerations 9
6.2 Asphalt Pavement 10
6.3 Concrete Pavement 11
6.4 Flexible Base Material 11

7.0 Limitations **11**

Attachments

A – Field Conditions
B – Borehole Location Map
C – Logs of Boreholes
D – Laboratory Result

1.0 Introduction

1.1 Overview

The purpose of this exploration was to determine subsurface materials and conditions and to establish the characteristics of these materials in order to recommend the criteria by which to establish foundation and recommendations for the proposed updates to the Lake View High School athletic facilities. Our understanding is that the proposed updates include the installation of artificial turf at the existing baseball and softball fields, two new tennis courts located north of the existing tennis facilities, turf installation for field events east of the existing track and football field, new bleachers on the west side of the track and football field, and light poles for the existing football field and proposed tennis courts. A summary of field conditions is included in Attachment A.

2.0 Exploration

2.1 Soil Borings

The subsurface explorations were conducted on this site in January 2026. The boreholes were drilled to a maximum depth of 30', and the logs of these boreholes are included in this report. The drilling was performed with a truck-mounted air rotary drill rig. The drilling activities were performed in accordance with accepted methods and procedures. A total of 19 boreholes, designated B1 – B19, were drilled at the site. The boreholes were conducted to their respective depths within the areas as described below. A location map showing the approximate borehole locations is included in Attachment B.

Drilled to a maximum depth of 30'
B1 – B2 – Proposed lighting areas for tennis courts
B3 – B6 – Proposed lighting areas for football field

Drilled to a maximum depth of 20'
B7 – B8 – Proposed tennis courts
B18 – B19 – Proposed bleachers for football field

Drilled to a maximum depth of 15'
B9 – B12 – Proposed baseball field turf (drilled as close as accessible)
B13 – B16 – Proposed softball field turf (drilled as close as accessible)
B17 – Proposed turf for field events

Material samples were recovered at various depths for testing. The primary means of extracting subsurface soil samples was by the use of a 3" Shelby-tube and/or a 2" O.D. split barrel sampler. Split spoon sampling procedures were performed in accordance with ASTM D 1586, and Shelby tube samples were obtained in accordance with ASTM D 1587. The samples were extruded or removed in the field and placed in moisture-tight bags and labeled. The samples were then transported to the laboratory for testing and visual evaluation by geotechnical personnel. The Unified Soil Classification System was utilized in accordance with ASTM D 2487 to verify field classifications. Refer to the logs of borings located in Attachment C for lithology, sample locations, and quantities.

2.2 Laboratory Tests

Tests were performed to determine engineering characteristics of the subsurface materials encountered, including, but not limited to, soil moisture content (ASTM D 2216), Atterberg Limits (ASTM D 4318) and sieve analysis. The test results can be found in Attachment D. Samples not tested in the laboratory will be retained for a maximum of 60 days and then discarded unless otherwise notified in writing prior to disposal of the samples.

3.0 Subsurface Investigation

3.1 Site Geology

Based on the location of the site on geological maps, it is our opinion that the predominant soil is the Slaughter-Cho complex (SkA). These particular soils are indicative of nearly level to gently sloping topography on smooth outwashed plains. These soils are well-drained and have slow surface runoff. Shrink-swell potential is expected to be medium and soil corrosivity to uncoated steel is high. Based on the location of the site and soil conditions, we do not foresee any adverse issues related to elevated sulfate concentrations.

3.2 Subsurface Materials and Conditions

The specific subsurface stratum encountered in each borehole is described in the logs of the boreholes included in Attachment C. The strata encountered at the boreholes conducted at the site can be divided into three major strata. The first stratum is a layer of lean clay with varying amounts of sand that extends from a depth of 0' to 2'. The second soil stratum consists of sand with varying amounts of silt, clay, and gravel that extends from a depth of 2' to 16'. The third stratum consists of limestone rock with intermittent sand seams that extends from a depth of 16' to the depth of the boreholes.

The subsurface stratum varies from those stated above as follows:

B7 – Clayey sand was encountered at a depth of 0’ to 2’;
B9 – Clayey sand was encountered at a depth of 0’ to 2’;
B11 – Sandy silt was encountered at a depth of 13’ feet to the depth of the borehole;
B12 – Sandy silt was encountered at a depth of 8’ to the depth of the borehole;
B14 – Clayey sand was encountered at a depth of 0’ to 2’:
B14 – Elastic silt was encountered at a depth of 13’ to the depth of the borehole
B15 – Poorly cemented limestone rock was encountered at a depth of 2’ to 6’;
B17 – Silty sand was encountered at a depth of 0’ to 3’.

3.3 Subsurface Water

There was no groundwater noted in any of the boreholes at the time of the investigation. The absence of groundwater noted does not express or imply that a groundwater study was performed, which is beyond the scope of this report. It should be noted that groundwater levels are subject to change based on seasonal and climatic conditions.

4.0 Site and Design Considerations

4.1 Basic Considerations

The properties of in-situ soils, site characteristics, and the level of tolerable deflection should be carefully considered during the design phase. A foundation should economically meet the functional requirements of the structure and minimize differential movement of the structure that could cause damage.

The site is developed with the existing high school facilities, which include but are not limited to fencing, the existing field and sprinkler system, buildings, and bleachers. Areas surrounding the field have natural vegetation, and are also used as a storage area for various materials. Any of the existing development and vegetation that falls within the footprint of the proposed development additions should be removed in their entirety, and engineered fill should be used to fill the excavated areas. The fill should be placed and compacted in accordance with the Site Preparation section of this report.

The depth and hardness of the subsurface cemented soil strata and rock present vary across the site. The seams of cemented soils and rock noted will hinder proposed excavation activities at the site. The variations should be noted by the engineer and contractor for all aspects of design and construction.

Routing of drainage should be addressed in the design phase of the project to ensure drainage is routed away and around proposed foundation systems and erosive conditions on the moderate slopes are avoided.

4.2 Subsurface Moisture

Water, in the form of a liquid, can rise upward through subsurface soils by capillary action, absorption or gravitational pull well above the water table. Water changes from a liquid to a vapor as it evaporates. Water vapor will move from areas of high vapor pressure to a lower vapor pressure through diffusion. Diffusion is how water vapor distributes itself above the water table and occurs in both soils and concrete.

It is generally recognized that the relative humidity in the soils below a foundation will be close to 100%. Such a high relative humidity is reached even when the moisture content in the material below the foundation is found to be low. Without a capillary break or vapor barrier below the foundation, a high relative humidity or water source below a foundation can contribute moisture to the concrete. This can cause soluble alkalis in the concrete to enter into solution thus raising the pH. Moisture induced pH levels in concrete can be on the range of 10 to 12 while normal cured levels can be on the range of 7 to 9.

The impact of subsurface moisture can be reduced by the use of a vapor barrier or capillary break. A vapor barrier below the foundation is recommended when floor coverings or adhesives are sensitive to moisture or alkaline conditions. A vapor barrier can be in the form of poly vinyl sheets and a capillary break can be a sand or granular base. Verification of the vapor emission limitations from the foundation is vital to the selection of the proper vapor barrier system.

4.3 Shrink/Swell Considerations

Shrink/swell movements of the in-situ soils with changes in the soil moisture content are anticipated to be medium at the site. The Potential Vertical Rise (PVR) was calculated to be on the order of 1-1/4" using the TXDOT PVR Method. The PVR was approximated using a potential active zone to fifteen feet below grade. The intent of this section is to provide depths for soil removal and replacement to achieve the PVR values noted below. No finished floor elevations were provided at the time of this report and consideration of specific elevations would have to be reviewed when additional information is available.

The PVR can be reduced to be on the order of 1" by providing a 1' layer of engineered fill below the foundation. The PVR can be reduced to be on the order of 3/4" by providing a 3' layer of engineered fill below the foundation. When engineered fill is utilized to reduce the PVR, the continuous footings must bear at the same depth as the depth of the engineered fill or engineered fill should be placed below the grade beam to accomplish the required depth. Refer to the Engineered Fill section for placement and specifications.

At the structural engineer’s discretion, alternative methods to compensate for the potential soil movement at the site may be utilized in place of soil modification. These methods may include providing a more rigid foundation system.

The PVR and, moreover, the foundation movement are affected by many factors that influence their magnitude and rate of change. Factors include: seasonal variations in the moisture content between the interior and perimeter of the foundation, topographic relief, vegetative cover, confining pressures, fluctuating and shallow water tables, and the composition of underlying soils. In-situ clays can expand with the introduction of moisture and shrink with decreases in moisture.

4.4 Synthetic Turf

4.4.1 Synthetic Turf Recommendations

We recommend removing and replacing in-situ soils on the fields to a depth that will reduce the PVR to within the turf manufacturer's specifications or to accommodate the owner's tolerance for movement. Engineered fill or an approved fill should be used to bring the fields up to design grade. The placement of these materials shall be in accordance with the Site Preparation section of this report.

We have provided the following typical turf section for review. The owner should verify the turf section with the contractor installing the turf to ensure it aligns with the contractor's typical installation methods. We recommend a system consisting of a fine aggregate underneath the turf backing, followed by a base aggregate between the fine aggregate and engineered fill as per the manufacturer's specification. The base aggregate shall be placed on a geotextile liner above the engineered fill, with the field graded to provide for adequate drainage.

We recommend that an adequate drainage system be installed beneath the turf, with drainage lines daylighted off and away from the fields. We recommend that panel drains be wrapped in a geotextile fabric. Our understanding is that the contractor intends to install flat panel drains and perforated HDPE drainage piping that will terminate at a field collector line ditch.

4.5 Foundation System and Recommendations

For ancillary buildings constructed in the vicinity of the borings conducted, we recommend an adequately reinforced slab-on-grade foundation system with grade beams placed as determined by the structural engineer with spread footings to support concentrated point loads and provide lateral stability where necessary. Pier parameters are provided herein, if the structural engineer chooses to utilize a foundation supported by piers. The owner, architect, and structural engineer should determine the tolerance for movement of the project, and an appropriate plan should be implemented either using soil modification according to the PVR depths provided above, or an alternative method at the structural engineer's discretion.

4.5.1 Grade Supported Foundation

We recommend a vapor barrier in the form of a poly vinyl sheet directly beneath the foundation with a minimum 12" thick layer of flexible base beneath the vapor barrier and a layer of engineered fill beneath the base as required to bring the finished floor elevation to design grade or to accommodate the owner's tolerance for movement. Footings shall bear to a depth below the existing grade or engineered fill shall be provided below the perimeter grade beams to a depth below the existing grade to accommodate the soil modification plan. A depth of 12" shall be utilized for the design frost depth. We recommend the polyvinyl vapor barrier to be a minimum 10 ml thickness. The placement of these materials shall be in accordance with the Site Preparation section of this report. The poly vinyl may be installed over a sand bed of approximately 1" thick to minimize tears in the vinyl if the owner, engineer, or contractor is concerned about tears experienced when poly vinyl is installed over a granular base. We recommend installing the vapor barrier in a manner to minimize tears and abrasions to the vinyl. We recommend doing a pre-pour inspection to verify that the vinyl is not torn and if so, that it is taped up and sealed, prior to placement of concrete.

We recommend grade beams not supported by piers to be a minimum of 12" wide, the dimensions of spread footings should be a minimum of 30" on all sides, and all footings should be properly reinforced for the anticipated design loads to minimize the possibility of a local bearing capacity failure.

Shallow continuous footings used for any portion of the foundation system should be structurally tied to the grade beams, spread footings, piers, or other structural elements. We recommend bearing the footings a minimum of 1' below the finished grade. The allowable bearing pressure exerted by the grade beams or spread footings on the in-situ soils from a depth of 1' to 2' is 1,300 psf, and from a depth of 2' to 4' is 2,600 psf. The value of 125 pci for subgrade modulus may be used for design purposes. The value of 28 degrees may be utilized for the internal friction angle of the clayey sand soils for design purposes. The value of 0.35 for the ultimate lateral sliding resistance coefficient may be utilized for design in regard to the foundation on an engineered fill. The allowable bearing pressure exerted by grade beams bearing into an engineered fill, placed in accordance with the specifications in Site Preparation of this report, is 3,200 psf.

4.5.2 Post-Tension Foundation

Two boreholes were conducted at the proposed tennis court location (B7 and B8) and are the basis of the parameters that follow. We have provided the design parameters for differential swell (y_m) using the Post-Tensioning Institute's (PTI) slab-on-grade method.

PTI Design Parameters	
Edge Moisture Variation (e_m) in ft Center Lift: Edge Lift:	 5.3 2.6
Differential Soil Movement (y_m) in inches Center Lift: Edge Lift:	 0.5 1.1

4.5.3 Drilled Piers

Straight shaft piers can be used for foundation support where column loads are less than 100 kips. The piers should bear a minimum of 17' up to 25' below the existing grade, bearing into the limestone stratum. We recommend foregoing the utilization of side shear resistance for the allowable bearing capacity of the piers between 0 and 10 feet of depth. An allowable side shear resistance of 1,200 psf for the portion of the shaft extending from a depth of 10' to the top of the limestone stratum, and of 1,500 psf for the portion of the shaft extending from the top of the limestone stratum to the depth of the borehole, may be utilized for uplift resistance. The allowable lateral bearing of the piers on the soils may be taken as 100 psf/f and 500psf/f in the limestone. Field adjustments to some shaft depths may be required due to the variation in the site elevations and the varied soils encountered. The allowable end bearing pressure exerted by the piers on the rock 17' to 25' below the existing grade is 12,500 psf.

We do not recommend the use of underreamed piers in the subsurface rock encountered due to the difficulty of construction. We recommend a minimum and maximum shaft diameter of 24" and 42", respectively for piers. Adjacent piers should maintain a minimum center to center spacing of 3 times the end bearing diameter. Piers spaced as specified do not require a reduction in the load carrying capacity of the individual piers due to group action.

Settlement of properly constructed piers are estimated to be less than ½" for loads of 100 kips or less. Additional settlement may occur if the load exceeds 100 kips.

Piers should be inspected for proper size, depth and reinforcement placement prior to the placement of any concrete. It is essential that the bearing stratum of the piers be identified by the engineer or his representative. A representative from SKG Engineering should be present during drilling activities to approve the bearing strata. Each pier excavation should be completed, and concrete placed within one day. In no instance should any pier excavation be left open overnight. We recommend alternating the drilling and placement of concrete for shafts in groups. Foundation concrete should be placed in clean, dry holes. Bottoms of pier excavation should be cleared of loose debris prior to the placement of concrete.

We do not anticipate the need for temporary pier casing to prevent caving or sloughing of the hole during pier drilling operations, due to the subsurface stratum. However, should field conditions warrant the use of pier casings, they should be utilized.

4.5.4 Uplift Loads

The piers may experience negligible tensile loads and will not require reinforcement to accommodate net tensile loads.

4.6 Seismic Design Criteria

We have provided the seismic criteria for use in the structural design phase of the project. The seismic criteria are based on the 2021 International Building Code. The stratum referenced in this section refers to those described in the section Subsurface Materials and Conditions of this report. Please refer to the following table for seismic design parameters.

Mapped Spectral Response Acceleration					
Depth	Site Class	Short Periods (S_s)	1 Second Period (S_1)	Site Coefficients	
				F_a	F_v
Stratum I	D	0.09g	0.04g	1.6	2.4
Stratum II	C	0.09g	0.04g	1.3	1.5
Stratum III	B	0.09g	0.04g	0.9	0.8

The International Building Code (IBC) requires a site soil profile determination extending a depth of 100 feet for seismic site classification. The scope of our geotechnical services requested does not include the 100-foot soil profile determination. Additional services can be performed if requested or required, since our scope terminated the boreholes at a depth of 30 feet. We would recommend utilizing a Seismic Site Classification of C for this site, based on the soil conditions to a depth of 30 feet.

4.7 Lateral Design Criteria

Retaining walls that are sensitive to movements on the order of 1-1/4" should be supported by piers bearing a minimum of 15’ below the existing grade in a firm, stable stratum. We recommend that wall footings bear a minimum of 2' below finished grade and be designed to withstand the lateral forces applied by earth pressures described below. The footings should not exceed the allowable bearing capacity of the soil on which it bears. The allowable passive earth pressure is 298 psf/ft of the depth, to a maximum of 1,500 psf.

Lateral earth pressures acting on the retaining walls will depend on several parameters such as; backfill used, drainage conditions and loads of adjacent structures. Recommended lateral earth pressures expressed as equivalent fluid pressures are presented below. The pressures below are assuming positive drainage is provided to prevent hydrostatic pressures.

Equivalent Fluid Pressures		
Material	At Rest (psf/ft)	Active (psf/ft)
Clayey sand	100	60
Silty sand	60	45
Lean clay	100	60
Sandy silt	100	45
Elastic silt	-	-
Limestone Rock	-	-
Engineered Fill	55	35

4.8 Backfill Material and Compaction

Retaining walls should be backfilled with a 12" width of pea gravel for the height of the wall. Backfill behind the pea gravel should be a non-expansive fill material with a maximum particle size of 4" nominal diameter, three-quarters of the wall height, and a clay cap on the top quarter of the wall height. We recommend providing weep holes along the bottom of the retaining wall at 10' on center maximum spacing for the length of the wall. We recommend placing fill in maximum 8" loose lifts and compacted to between 93% to 97% of the Standard Proctor Density. Compaction tests should be performed on each lift.

4.9 Drainage

Positive drainage away from the foundation must be provided and maintained to reduce subsurface moisture variations. The minimum recommended slope away from the foundation is 5% for the first 10 feet for areas not covered by a sidewalk or pavement. Water shall not be permitted to pond on the finished site.

Due to the presence of in-situ clays, we recommend that, throughout the design and construction phase an emphasis on maintaining a stable moisture content in the soils beneath and adjacent to the foundation be a major priority. Temporary and permanent control measures should be properly designed and installed to ensure positive drainage away from the foundation to maintain a quasi-stable soil moisture content. The measures include, but are not limited to, gutters, sprinkler systems, and a site grading plan.

4.10 Underground Utilities

The backfill material used for underground utility trenches that do not pass within 5’ of the edge of a foundation should be on-site materials or imported clayey materials. We recommend not using a granular material to avoid the possibility of water migration through the trenches and possibly under foundation systems at the site.

For utility trenches that pass within 5’ of the edge or pass underneath a foundation on the site, the backfill material used for the trench shall be a controlled low-strength material (CLSM) conforming to ACI 229 and ASTM D4832, with compressive strength between 50 and 10 psi at 28 days. The mixture shall be self-leveling as per ASTM D6103, with a spread greater than or equal to 8” and shall be excavatable. The fill shall be placed without compaction. Utility lines must be anchored to resist buoyancy. Volume shall be verified by yield and density testing.

4.11 Exterior Flatwork Considerations

Engineered fill shall be used as needed to bring the flatwork to grade. Control joints should be cut at a maximum spacing of 6' for the length of the flatwork and expansion joints at a maximum spacing of 50'. We recommend installing flatwork as not to impound water adjacent to structural foundations.

4.12 Trenching and Excavation Requirements

The guidelines specified by the Occupational Safety and Health Administration (OSHA) should be followed for all excavation activities. The OSHA Standards (29 CFR Part 1926 revised, 1989) require all trenches that exceed 5' in depth to be shored or benched appropriately unless the soil stratum is “solid” rock.

The OSHA standards should be strictly adhered to for all excavation activities. The classification of the soils encountered at the site is Type C soils. The soil classifications are based on soils encountered in the boreholes conducted at the site. Refer to the following OSHA Table B-1 for slope requirements for excavations that are less than 20 feet in depth. Trenches in excess of 20 feet in depth should be designed by a registered professional engineer.

Maximum Allowable Slopes		
Stratum	Horizontal	Vertical
Stable Rock	Vertical	1
Type A	3/4	1
Type B	1	1
Type C	1-1/2	1

The above information is provided for temporary excavations. We recommend that any permanent trenches proposed for the site should have a minimum of 4:1 side slope. Any permanent trenches or channels should be lined with erosion control measures.

5.0 Site Preparation

5.1 Subgrade

Remove the top 6" of surface soils, any deleterious material, and in-situ soils as necessary to bring the finished floor elevation to design grade. The top 6" of material should then be scarified, moisture conditioned, and compacted to at least 95% of the Standard Proctor Density within 2% points of the optimum moisture content. Any soft or pumping areas are to be excavated and an engineered fill shall be used as backfill. Where existing slopes exceed ten horizontal to one vertical, the cross slope should be benched to provide a minimum of 6' bench width.

5.2 Engineered Fill

An approved select fill shall be used to bring the foundation system to grade. It shall be a cohesive soil, free of deleterious material, have a liquid limit of less than 40, and a plasticity index between 6 and 14. The select fill shall meet the following percent retained on sieve requirements: 2-1/2": 0-5%, No. 4: 40-80%, and No. 40: 50-85% or obtain approval from the geotechnical engineer. The fill should be installed in maximum eight-inch loose lifts and compacted to at least 95% of the Standard Proctor Density within 3% points of the optimum moisture content. Base consisting of TxDOT Type A, Grade 2 limestone will be accepted as engineered fill. Blended materials utilized for engineered fill will have to meet the specifications herein and be approved by the geotechnical engineer. If a blended material is approved, the contractor shall blend the material and have one stockpile for the entire project. Continuous blending of material throughout the duration of the project is not acceptable.

5.3 Flexible Base Material

Provide compacted base consisting of Type A, Grade 2, limestone material below the foundation. Compact to 96% of the Standard Proctor Density within 2% points of the optimum moisture content. Material shall be placed in lifts not to exceed 8". Alternative flexible base materials provided by a local supplier which do not meet theses specifications shall be approved by the Engineer of record.

5.4 Testing

Test results of the engineered fill shall be submitted to the engineer of record for approval prior to incorporating into the work. Arrange for a testing agency to verify flexible base, engineered fill, and subgrade compaction and moisture content. To confirm the compaction of the subgrade, engineered fill, and base we recommend the more stringent of three density tests for each lift placed or one density test for every 2,000 square feet of foundation area for each lift placed. The Standard Proctor Density shall be determined in accordance with ASTM D698.

6.0 Pavement Design and Criteria

6.1 Considerations

Concrete or asphalt paving may be used to surface the area for access and parking. Concrete paving is recommended at entrances and areas that will be subject to truck and dumpster traffic. The pavements may be subject to slight differential movement due to underlying clays. Pavement grades should be greater than 1.0% and curb and gutter grades should be greater than 0.4%. Positive drainage shall be provided to prevent water from ponding.

"Light and Medium Duty" pavement is intended for parking areas and other lightly traveled areas. "Heavy Duty" pavement is intended for drives, loading areas, and highly used areas subject to heavier traffic loads. Light, medium, and heavy-duty pavement sections were evaluated using procedures from the AASHTO Guide for Design of Pavement Structures. Assumptions used in the design include: a serviceability loss of 2.5, a 90% reliability, a standard deviation of 0.40%, and a soil resilient modulus of 9,000 psi. Traffic design values used for this report are: 50,000 ESALs for light duty, 100,000 ESALs for medium duty, and 200,000 ESALs for heavy duty pavement. In the event site specific traffic conditions vary from these design values, contact the engineer of record for supplemental pavement designs.

6.2 Asphalt Pavement

Areas to receive asphalt pavement should have the top 6" of surface soils and any deleterious material removed, cut to subgrade elevation, and then proof rolled. Any soft spots found during the proof rolling should be removed and filled back to grade. The top six inches of subgrade should be scarified and compacted to at least 95% Standard Proctor Density within 2% points of the optimum moisture content. At the contractor's option, 6% to 12% lime may be added to the subgrade during the scarifying process to stabilize soil and possibly achieve compaction with less effort and pumping of the clayey soils. Where additional fill is required, suitable site soils or an engineered fill placed in accordance with the Engineered Fill section of this report may be used. The flexible base shall be compacted to at least 97% Standard Proctor Density. The Hot Mix Asphalt Concrete (HMAC) shall be Type D or C dense graded hot-mix asphalt meeting the requirements of TxDOT Item 341. HMAC base shall be Type A or B dense graded hot-mix asphalt meeting the requirements of TxDOT Item 341. The pavement schedule below provides options for the pavement sections based on different ESAL levels.

HMAC over Granular Base			
Pavement Component	Traffic Design ESALs		
	50,000	100,000 (Standard Duty)	200,000 (Heavy Duty)
	Thickness (inches)		
HMAC (A_1=0.44)	1.50	2.00	2.00
Crushed Stone Base (A_2=0.18)	7.00	7.00	8.50
Compacted Subgrade	6.00	6.00	6.00

Full Depth HMAC			
Pavement Component	Traffic Design ESALs		
	50,000	100,000 (Standard Duty)	200,000 (Heavy Duty)
	Thickness (inches)		
HMAC (A_1=0.44)	1.50	2.00	2.00
HMAC Base (A_2=0.35)	4.00	4.00	4.50
Compacted Subgrade	6.00	6.00	6.00

6.3 Concrete Pavement

Areas to receive concrete paving should have the top 6" of surface soil, any deleterious material removed, cut to subgrade elevation, and then proof rolled. Any soft spots found during the proof rolling should be removed and filled back to grade. The top six inches of subgrade should be scarified and compacted to at least 95% Standard Proctor Density. At the contractor's option, 6% to 12% lime may be added to the subgrade during the scarifying process to stabilize soil and possibly achieve compaction with less effort and pumping of the clayey soils. Where additional fill is required, an engineered fill placed in accordance with the ENGINEERED FILL section of this report may be used. The concrete shall have a minimum 28-day compressive strength of 3,600 psi and an air content between 3 and 6%. Pavement shall be reinforced with #4 bars at 12" centers each way, at a minimum. Saw cut control joints to one fourth of the total depth at a spacing not to exceed 13'-2" (12'-6" typical). Provide expansion/contraction joints at a spacing not to exceed 52' each direction (50' typical).

Concrete over Subgrade			
Pavement Component	Traffic Design ESALs		
	50,000	100,000	200,000
	Thickness (inches)		
Concrete	4.50	5.00	6.00
Compacted Subgrade	6.00	6.00	6.00

6.4 Flexible Base Material

Base materials to be utilized within the paved areas should be a crushed limestone meeting the requirements of TxDOT Item 247, Type A, Grade 2, thus having a Plasticity Index less than or equal to 12 and a Liquid Limit less than or equal to 40. The base materials should be placed in loose lifts with a compacted thickness not to exceed 8 inches per lift. Alternative flexible base materials provided by a local supplier that do not meet these specifications shall be approved by the Engineer of record.

7.0 Limitations

The recommendations presented in this report are based upon the information obtained from the borings performed at the site and from other information discussed in this report. This report is based upon the findings from the borings made and may not identify all subsurface variations that exist across the site. The nature and extent of such variations may not become evident until construction. If significant variations appear, contact SKG Engineering to further assess the design criteria and the recommendations contained within this report.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such conditions, the appropriate investigations should be performed.

No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are made, the recommendations contained in this report shall not be considered valid unless SKG Engineering reviews the changes and either verifies or modifies the conclusions of this report in writing.

Attachment A

Field Conditions

Summary of Field Conditions

The following field conditions were observed during the field exploration activities.

1. The site is developed with the current high school facilities. The accessibility of some types of equipment should be verified in some of the areas of the site where multiple buildings are in the area.

2. The surface soil conditions on the site are generally clay that is considered a soft soil material. The soil conditions will probably hinder the mobilization of some types of construction equipment during rain events that saturate the soil.

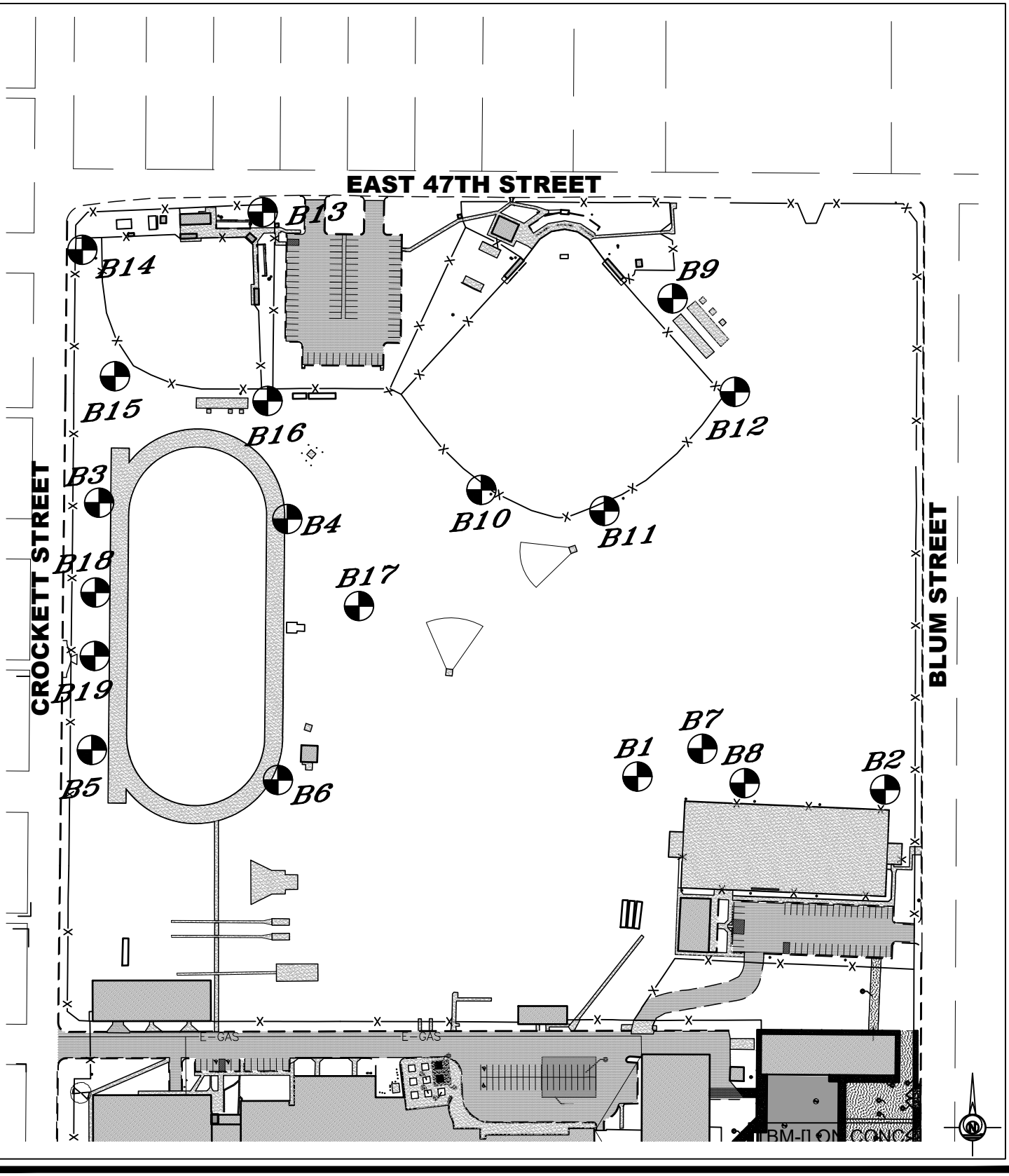
3. Groundwater was not present at the time of drilling activities in any of the boreholes.

4. Rock was present subsurface at varying depths across the site. Refer to the logs of boreholes for specific lithology.

5. Site soils are not anticipated to be of quality to be used for fill material under the foundation systems. We anticipate the site soils may be used for nonstructural applications, such as; landscape fill.

Attachment B

Borehole Location Map



SKG
ENGINEERING, LLC
SURVEYING ♦ ENVIRONMENTAL ♦ LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

LAKE VIEW HIGH SCHOOL
ATHLETIC FACILITIES
900 EAST 43RD STREET
SAN ANGELO, TEXAS

BOREHOLE LOCATION MAP

DWG BY: AV	DWG. DATE: 01.28.2026
JOB NO. 25-E-1742	SHEET NO. BH1
SCALE: 1"=250'	

Attachment C

Logs of Boreholes

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE.	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
				GP	POORLY GRADED GRAVELS OR GRAVEL–SAND MIXTURES, LITTLE OR NO FINES.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
				GC	CLAYEY GRAVELS, GRAVEL–SAND–SILT MIXTURES.
	SILTS AND CLAYS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
				SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND–SILT MIXTURES.
				SC	CLAYEY SANDS, SAND–CLAY MIXTURES.
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE.	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50.			ML	INORGANIC SILTS AND VERY FINE SANDS, FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS AND WITH SLIGHT PLASTICITY.
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50.			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS.
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS.

SAMPLER TYPE



WATER LEVEL AT END OF DRILLING

WATER TABLE AT TIME OF DRILLING

SOIL TERMS	DESCRIPTION
BLOCKY	CONTAINS CRACKS OR FAILURE PLANES RESULTING IN ROUGH CUBES OF MATERIAL.
CALCAREOUS	CONTAINS APPRECIABLE QUANTITIES OF CALCIUM CARBONATE.
FISSURED	CONTAINS SHRINKAGE CRACKS, WHICH ARE FREQUENTLY FILLED WITH FINE SAND OR SILT. THE FISSURES ARE USUALLY NEAR VERTICAL IN ORIENTATION.
INTERBEDDED	COMPOSED OF ALTERNATING LAYERS OF DIFFERENT SOIL TYPES.
LAMINATED	COMPOSED OF THIN LAYERS OF VARYING COLOR AND TEXTURE.
NODULES	SECONDARY INCLUSIONS THAT APPEAR AS SMALL LUMPS ABOUT 0.1 TO 0.3 INCH IN DIAMETER.
PARTINGS	INCLUSION OF DIFFERENT MATERIAL LESS THAN ⅛ INCH THICK EXTENDING THROUGH THE SAMPLE.
POCKETS	INCLUSION OF DIFFERENT MATERIAL THAT IS SMALLER THAN THE DIAMETER OF THE SAMPLE.
SEAMS	INCLUSION OF DIFFERENT MATERIAL BETWEEN ⅛ AND 3 INCHES THICK, AND EXTENDS THROUGH THE SAMPLE.
SLICKENSIDED	HAS INCLINED PLANES OF WEAKNESS THAT ARE SLICK AND GLOSSY IN APPEARANCE. SLICKENSIDES ARE COMMONLY THOUGHT TO BE RANDOMLY ORIENTED.
STREAKS OR STAINS	STAINS OF LIMITED EXTENT THAT APPEAR AS SHORT STRIPES, SPOTS OR BLOTCHES.

ROCK TERMS	
BEDDING PLANE	A SURFACE PARALLEL TO THE SURFACE OF DEPOSITION, GENERALLY MARKED BY CHANGES IN COLOR OR GRAIN SIZE.
FRACTURE	A NATURAL BREAK IN ROCK ALONG WHICH NO DISPLACEMENT HAS OCCURED.
JOINT	A NATURAL BREAK ALONG WHICH NO DISPLACEMENT HAS OCCURED, WHICH GENERALLY INTERSECTS PRIMARY SURFACES.
% RECOVERY	THE RATIO OF TOTAL LENGTH OF RECOVERY TO THE TOTAL LENGTH OF CORE RUN, EXPRESSED AS A PERCENTAGE.
RQD - ROCK QUALITY DESIGNATION	THE RATIO OF TOTAL RECOVERED LENGTH OF FRAGMENTS LONGER THAN 4 INCHES TO THE TOTAL RUN LENGTH, EXPRESSED AS A PERCENTAGE.
WEATHERING	THE PROCESS BY WHICH ROCK IS BROKEN DOWN AND DECOMPOSED.

MOISTURE CONTENT

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH.
DAMP	SOME PERCEPTIBLE MOISTURE; BELOW OPTIMUM.
MOIST	NO VISIBLE WATER; NEAR OPTIMUM MOISTURE CONTENT.
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE.

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	POCKET PENETROMETER READING IN TONS/FT2	N-VALUE (BLOWS/FOOT)
VERY SOFT	0 TO 0.25	<2
SOFT	0.25 TO 0.5	2 TO 4
FIRM	0.5 TO 1.0	4 TO 8
STIFF	1.0 TO 2.0	8 TO 15
VERY STIFF	2.0 TO 4.0	15 TO 30
HARD	>4.0 OR 4.5+	>30

CLAY	SILT	SAND			GRAVEL		COBBLES	BOULDERS
		FINE	MEDIUM	COARSE	FINE	COARSE		

0.005mm No.200 No.40 No.10 No.4 ¾" 3" 12"

U.S. STANDARD SIEVE SIZE

RELATIVE DENSITY-GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 10
MEDIUM DENSE	11 TO 30
DENSE	31 TO 50
VERY DENSE	>50 OR 50+

REFERENCE: THE UNIFIED SOIL CLASSIFICATION SYSTEM, CORPS OF ENGINEERS, U.S. ARMY TECHNICAL MEMORANDUM NO. 3–357, VOL. 1 MARCH, 1953 (REVISED APRIL, 1960)

KEY
TO SYMBOLS AND TERMS

SKG
ENGINEERING

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: **Lake View High School - Athletic Facility**
900 East 43rd Street, San Angelo, Texas

B-1

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); brown			6/20/21			
		clayey SAND (SC):tan			10/17/20	8.7	13	
5					19/23/25			
						13.4	27	
		cemented clayey SAND (SC); tan, with gravel seams			50-4"			
10								
					50-4"	13.8	30	
15								
		poorly cemented LIMESTONE ROCK (LT); white, with sand seams			50-4"			
20								
					50-4"			
25								
					50-4"			
30		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

GWT not encountered

SKG Engineering, LLC | **25-E-1742** | **Plate A-** *1*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-2

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		lean CLAY (CL); dark brown, with sand			5/6/8	11.7	15	
					22/36/39			
		clayey SAND (SC); tan, with gravel			36/34/36	7.4	17	
5								
		cemented clayey SAND (SC); tan, with gravel seams			50-4"	9.2	24	
10								
					50-4"			
15								
		poorly cemented LIMESTONE ROCK (LT); white, with sand seams			50-3"			
20								
					50-3"			
25								
					50-3"			
30		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-3

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			50-3"	7.8	15	
		clayey SAND (SC); brown, with an abundance of gravel			50-3"			
		cemented silty SAND (SM); tan, with gravel seams			50-2"	5.2	3	
5								
		cemented clayey SAND (SC); tan, with gravel seams			50-3"	10.8	11	
10								
		LIMESTONE ROCK (LT); white			50-3"			
15								
					50-3"			
20								
					50-2"			
25								
					50-2"			
30		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *3*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-4

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			2/5/10	9.1	18	
		silty SAND (SM); tan			10/18/29			
5		GWT not encountered			50-5"	5.5	2	
10					50-4"			
		cemented clayey SAND (SC); tan, with gravel seams			50-3"	10.3	18	
15								
20					50-3"			
		poorly cemented LIMESTONE ROCK (LT); white, with sand seams						
25					50-3"			
30					50-3"			
		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-5

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			4/5/13	9.1	16	
					50-2"			
		cemented silty SAND (SM); tan with gravel seams			50-3"			
5								
						9.8	18	
					50-3"			
10								
		LIMESTONE ROCK (LT); white						
					50-3"			
15								
					50-3"			
20								
		LIMESTONE ROCK (LT); white, with sand seams			50-3"			
25								
					50-2"			
30		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-6

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
		Surface Elevation:						
0		lean CLAY (CL); dark brown, with sand			3/6/9	16.3	16	
					9/15/43			
		clayey SAND (SC); tan, with gravel			31/24/29	6.7	21	
5								
		cemented clayey SAND (SC); tan, with gravel seams			50-4"	9.4	19	
10								
					50-3"			
15		poorly cemented LIMESTONE ROCK (LT); white, with sand seams						
					50-3"			
20								
					50-3"			
25								
					50-3"			
30		Boring completed at a depth of 30'. Groundwater was not present at the time of drilling activities.						
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *6*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-7

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		clayey SAND (SC); dark brown			7/19/28	5.2	10	
		color change to tan at 2'.			18/14/11			
5					10/16/17	10.2	17	
		cemented silty SAND (SM); tan, with gravel seams			50-4"	12.9	16	
10								
					50-4			
15								
					50-4"			
20		Boring completed at a depth of 20'. Groundwater was not present at the time of drilling activities.						
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- 7

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-8

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
0		clayey SAND (SC); tan			9/20/28			
					16/21/24	7.8	13	
					17/24/28			
5						13.3	16	
		cemented clayey SAND (SC); tan, with gravel seams			50-4"			
10								
					50-4"	10.6	20	
15								
					50-4			
20		Boring completed at a depth of 20'. Groundwater was not present at the time of drilling activities.						
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *8*

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-9

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 | **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
		Surface Elevation:						
0		clayey SAND (SC); dark brown, with gravel			4/8/32	7.4	8	
		Color change to tan and 2'			50-5"			
5					50-4"	6.5	9	
		cemented clayey SAND (SC); tan, with gravel seams			50-4"			
10								
15					50-4"			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- 9

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-10

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			4/24/37			
		clayey SAND (SC); tan			50-5"			
5					50-4"	12.5	15	
10					50-4"			
		cemented clayey SAND (SC); tan, with gravel seams						
15					50-4"	13.2	17	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-11

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			7/20/23			
		clayey SAND (SC); tan			50-6"			
5					50-4"			
						10.5	17	
		cemented clayey SAND (SC); tan			50-4"			
10								
					50-4"	17.6	14	
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *11*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: **Lake View High School - Athletic Facility**
900 East 43rd Street, San Angelo, Texas

B-12

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 | **Date Finished: January 22, 2026**

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop: 30 inches**

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			9/18/20			
		clayey SAND (SC); tan			50-6"	6.4	21	
5					50-6"			
		cemented clayey SAND (SC); tan			50-4"	11.4	9	
10								
15					50-4"			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | **25-E-1742** | **Plate A-** *12*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-13

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			9/19/24			
		silty SAND (SM); tan			50-4"	9.5	2	
5		GWT not encountered			50-4"			
10					50-4"			
		cemented clayey SAND (SC): tan, with gravel seams			50-3"	24.0	21	
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-14

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 | **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
		Surface Elevation:						
0		clayey SAND (SC); dark brown			8/12/21	6.7	37	
		Color change to tan at 2'.			50-4"			
5					50-4"	8.0	15	
		cemented clayey SAND (SC); tan, with gravel seams			50-3"			
10		(Seam of clay encountered from 12' to 13')						
		elastic SILT (MH); tan, with sand			50-4"	41.9	23	
15		Boring completed at depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *14*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-15

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Surface Elevation:

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
0		sandy lean CLAY (CL); dark brown			12/19/24			
		poorly cemented LIMESTONE ROCK (LT); white, with sand seams			50-3"			
5					50-3"			
		cemented clayey SAND (SC); tan, with gravel seams						
10					50-4"	14.6	19	
					50-4"			
15		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *15*

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-16

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 | **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs | **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples: Number	Samples: Type	Samples: SPT	Laboratory: W%	Laboratory: PI	Laboratory: UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			13/20/26			
		clayey SAND (SC); tan			50-4"	8.4	13	
5					50-4"			
10					50-4"			
		cemented clayey SAND (SC); tan, with gravel seams						
15					50-3"	13.5	18	
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-17

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		silty SAND (SM); dark brown			7/9/24	10.7	3	
		clayey SAND (SC); tan			50-4"			
5					50-4"	9.7	17	
		cemented clayey SAND (SC); tan, with gravel seams						
10					50-4"	14.3	15	
		poorly cemented LIMESTONE ROCK (LT); white						
15					50-4			
		Boring completed at a depth of 15'. Groundwater was not present at the time of drilling activities.						
20								
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *17*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-18

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples Number	Samples Type	Samples SPT	Laboratory W%	Laboratory PI	Laboratory UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			50-4"			
		cemented clayey SAND (SC); tan, with gravel seams			50-4"	5.9	10	
5		GWT not encountered			50-3"			
						6.6	15	
10					50-3"			
		LIMESTONE ROCK (LT): white						
15					50-3"			
20					50-3"			
		Boring completed at a depth of 20'. Groundwater was not present at the time of drilling activities.						
25								
30								
35								

SKG Engineering, LLC | 25-E-1742 | Plate A- *18*

SuperLog CivilTech Software, USA www.civiltech.com File: N:\Engineering\2025\25E1742 SAISD Athletic Projects LakeView-Softball_Baseball_Tennis_Track\Geotech\Final Borehole logs.log Date: 2/19/2026

Project: Lake View High School - Athletic Facility
900 East 43rd Street, San Angelo, Texas

B-19

Boring Location: Refer to the borehole location map

Date Started: January 22, 2026 **Date Finished:** January 22, 2026

Drilling Method: Air rotary

Hammer Weight: 140 lbs **Drop:** 30 inches

Sampler: Shelby tube/2" split barrel sampler

NOTE: Limestone rock and soils noted with blow counts of 50 or greater are extremely hard. Contractor should verify equipment needed to establish designed foundation system prior to construction.

Depth (feet)	Lith-ology	Material Description	Samples			Laboratory		
			Number	Type	SPT	W%	PI	UU (psf)
		Surface Elevation:						
0		sandy lean CLAY (CL); dark brown			50-4"			
		clayey SAND (SC); tan, with gravel			50-3"			
		cemented clayey SAND (SC); tan, with gravel seams			50-4"	7.5	12	
5								
					50-4"	13.2	18	
10								
					50-3"			
15		LIMESTONE ROCK (LT); white						
					50-3"			
20		Boring completed at a depth of 20'. Groundwater was not present at the time of drilling activities.						
25								
30								
35								

GWT not encountered

SKG Engineering, LLC | 25-E-1742 | Plate A- *19*

Attachment D

Laboratory Results

SKG
ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT:	SAISD
PROJECT:	Lake View High School
PROJECT #:	25-E-1742
DATE:	2/17/2026

Lab No.	Description			Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-0077	B1	1.5	3	17	30	13	8.7	90.9	42.9	29.9
26-0078	B1	6	7.5	23	50	27	13.4	93.0	50.6	35.4
26-0079	B1	14	15	26	56	30	13.8	94.7	61.6	49.1
26-0080	B2	0	1.5	17	32	15	11.7	99.7	97.9	76.0
26-0081	B2	3.5	5	19	36	17	7.4	81.3	51.6	33.4
26-0082	B2	8.5	10	22	46	24	9.2	85.0	48.8	30.4
26-0083	B3	0	1.5	20	35	15	7.8	93.2	78.4	56.2
26-0084	B3	3.5	5	15	18	3	5.2	91.4	47.7	27.0
26-0085	B3	8.5	10	21	31	11	10.8	86.1	29.6	17.5
26-0086	B4	0	1.5	20	39	18	9.1	98.6	75.1	53.5
26-0087	B4	3.5	5	14	16	2	5.5	94.1	43.2	25.9
26-0088	B4	14	15	23	41	18	10.3	88.8	51.6	42.1
26-0089	B5	0	1.5	20	36	16	9.1	97.9	93.5	65.8
26-0090	B5	6	7.5	32	50	18	9.8	93.2	61.3	43.0
26-0091	B6	0	1.5	24	40	16	16.3	99.9	98.4	79.8
26-0092	B6	3.5	5	16	37	21	6.7	84.2	51.1	34.5
26-0093	B6	8.5	10	23	42	19	9.4	94.1	61.6	43.5
26-0094	B7	0	1.5	14	25	10	5.2	89.9	41.9	26.7

Average PL	20
Average LL	37
Average PI	16
Average % Clay	42.8

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SKG
ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT:	SAISD
PROJECT:	Lake View High School
PROJECT #:	25-E-1742
DATE:	2/17/2026

Lab No.	Description			Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-0095	B7	3.5	5	23	39	17	10.2	87.9	52.7	34.2
26-0096	B7	8.5	10	28	44	16	12.9	92.0	58.7	42.7
26-0097	B8	1.5	3	15	29	13	7.8	92.5	45.6	27.8
26-0098	B8	6	7.5	25	41	16	13.3	88.6	52.9	35.9
26-0099	B8	14	15	25	46	20	10.6	91.9	46.6	31.6
26-0100	B9	0	1.5	19	27	8	7.4	78.4	70.2	48.6
26-0101	B9	3.5	5	17	26	9	6.5	92.3	53.5	32.2
26-0102	B10	3.5	5	16	32	15	12.5	97.1	59.9	44.9
26-0103	B10	14	15	25	42	17	13.2	97.7	66.1	47.4
26-0104	B11	6	7.5	24	41	17	10.5	93.1	44.5	27.3
26-0105	B11	14	15	29	43	14	17.6	98.3	67.2	56.0
26-0106	B12	1.5	3	16	37	21	6.4	93.4	46.5	26.7
26-0107	B12	8.5	10	26	36	9	11.4	96.9	69.9	50.9
26-0108	B13	1.5	3	14	16	2	9.5	95.7	50.5	30.4
26-0109	B13	14	15	26	48	21	24.0	96.4	64.8	45.7
26-0110	B14	0	1.5	17	55	37	6.7	99.7	76.1	42.8
26-0111	B14	3.5	5	13	28	15	8.0	97.1	68.0	48.7
26-0112	B14	14	15	46	69	23	41.9	97.4	82.5	74.8

Average PL	22
Average LL	39
Average PI	16
Average % Clay	41.6

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SKG
ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189

ANALYSIS RESULTS

CLIENT:	SAISD
PROJECT:	Lake View High School
PROJECT #:	25-E-1742
DATE:	2/17/2026

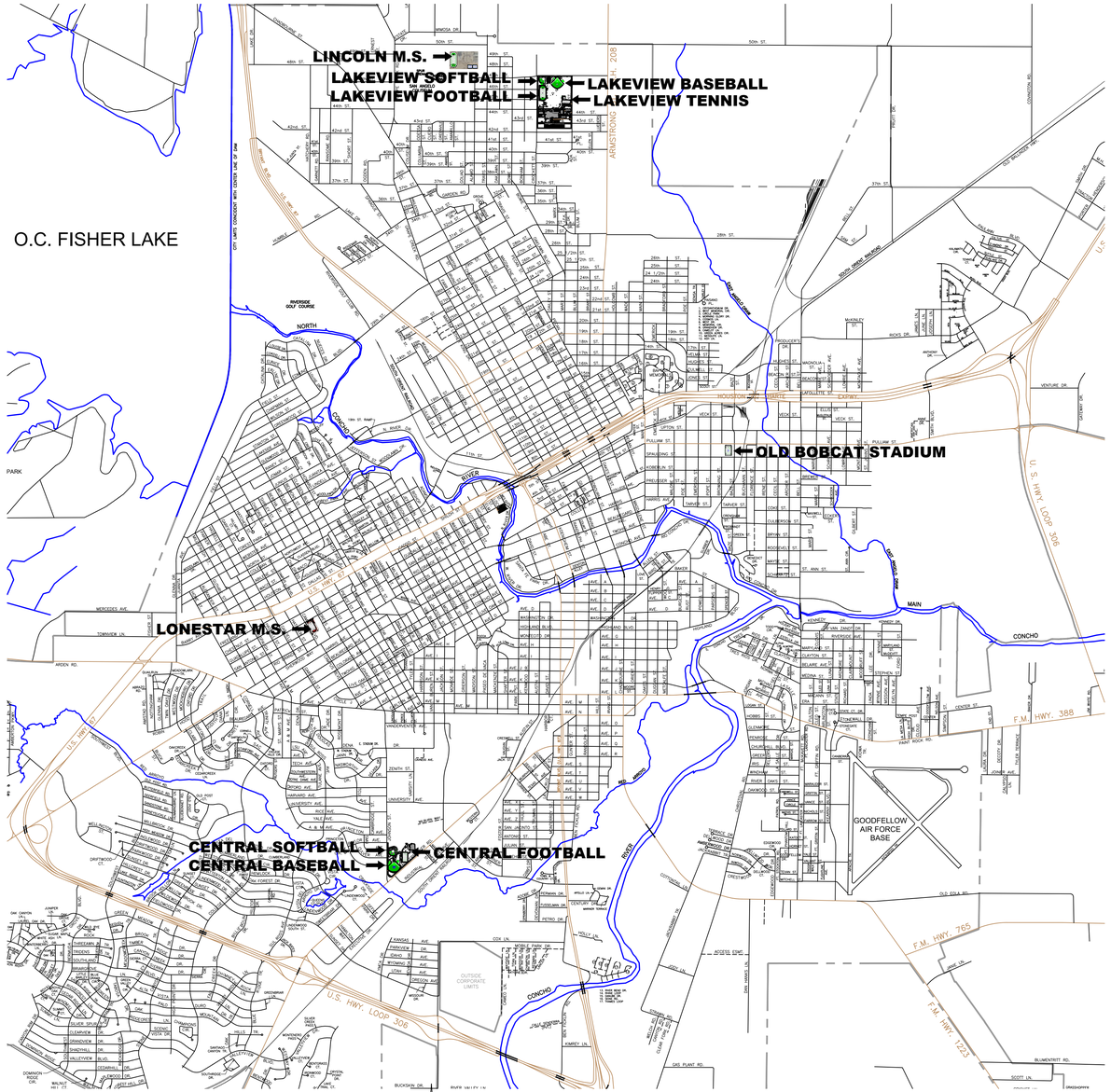
Lab No.	Description	Plastic Limit (%) *	Liquid Limit (%)*	Plasticity Index *	Moisture (%) *	Pass # 4 Sieve (%)*	Pass # 40 Sieve (%)*	Pass # 200 Sieve (%)*
26-0113	B15 8.5 10	25	44	19	14.6	97.7	64.2	43.0
26-0114	B16 1.5 3	18	31	13	8.4	94.7	64.0	47.0
26-0115	B16 14 15	26	44	18	13.5	95.0	58.1	42.9
26-0116	B17 0 1.5	17	20	3	10.7	98.6	73.4	46.8
26-0117	B17 3.5 5	18	35	17	9.7	94.4	61.4	46.3
26-0118	B17 8.5 10	26	41	15	14.3	97.1	79.5	65.2
26-0119	B18 1.5 3	5	16	10	5.9	95.3	48.9	28.1
26-0120	B18 6 7.5	13	29	15	6.6	90.8	56.2	37.9
26-0121	B19 3.5 5	17	29	12	7.5	96.0	60.6	43.7
26-0122	B19 8.5 10	26	44	18	13.2	95.9	60.1	42.0

Average PL	19
Average LL	33
Average PI	14
Average % Clay	44.3

Stephanie Cheatheam

Stephanie Cheatheam
Lab/CMT Manager

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS



VICINITY MAP
N.T.S.

TABLE OF CONTENTS:

C0.0 COVER SHEET
CENTRAL BASEBALL FIELD
A-C0.1 TOPOGRAPHIC SURVEY
A-C1.1 SITE PLAN
A-C2.1 GRADING AND DRAINAGE PLAN
CENTRAL SOFTBALL FIELD
B-C0.1 TOPOGRAPHIC SURVEY
B-C1.1 SITE PLAN
B-C2.1 GRADING AND DRAINAGE PLAN
CENTRAL FOOTBALL FIELD
C-C0.1 TOPOGRAPHIC SURVEY
C-C1.1 SITE PLAN
C-C2.1 GRADING AND DRAINAGE PLAN
CENTRAL HIGH SCHOOL BAND PRACTICE
D-C0.1 TOPOGRAPHIC SURVEY
D-C1.1 SITE PLAN
LAKEVIEW BASEBALL FIELD
E-C0.1 TOPOGRAPHIC SURVEY
E-C1.1 SITE PLAN
E-C2.1 GRADING AND DRAINAGE PLAN
LAKE VIEW SOFTBALL FIELD
F-C0.1 TOPOGRAPHIC SURVEY
F-C1.1 SITE PLAN
F-C2.1 GRADING AND DRAINAGE PLAN
LAKE VIEW FOOTBALL FIELD
G-C0.1 TOPOGRAPHIC SURVEY
G-C1.1 SITE PLAN
LAKE VIEW TENNIS COURTS
H-C0.1 TOPOGRAPHIC SURVEY
H-C1.1 SITE PLAN
H-C2.1 GRADING AND DRAINAGE PLAN
H-S1.1 FOUNDATION PLAN
H-S2.1 FOUNDATION DETAILS
OLD BOBCAT STADIUM
I-C0.1 TOPOGRAPHIC SURVEY
I-C1.1 SITE PLAN
LINCOLN MIDDLE SCHOOL
J-C0.1 TOPOGRAPHIC SURVEY
J-C1.1 SITE PLAN
J-C2.1 GRADING AND DRAINAGE PLAN
LONESTAR MIDDLE SCHOOL
K-C0.1 TOPOGRAPHIC SURVEY
K-C1.1 SITE PLAN
K-C2.1 GRADING AND DRAINAGE PLAN
C3.1 SITE DETAILS
C3.2 SITE DETAILS

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LABICMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
WWW.SKGE.COM

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC. #F-7608
MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

COVER SHEET

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. C0.0
SCALE: NONE	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\CIVIL DETAILS.dwg

LEGEND

- PROPERTY LINE
- x 1861.22 SPOT ELEVATION
- 1861 CONTOUR LINE
- BUILDING
- CONCRETE
- CURB AND GUTTER
- FENCE TO BE REMOVED

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET PHONE: 325.655.1285
SAN ANGELO, TEXAS 76903 FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtr.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

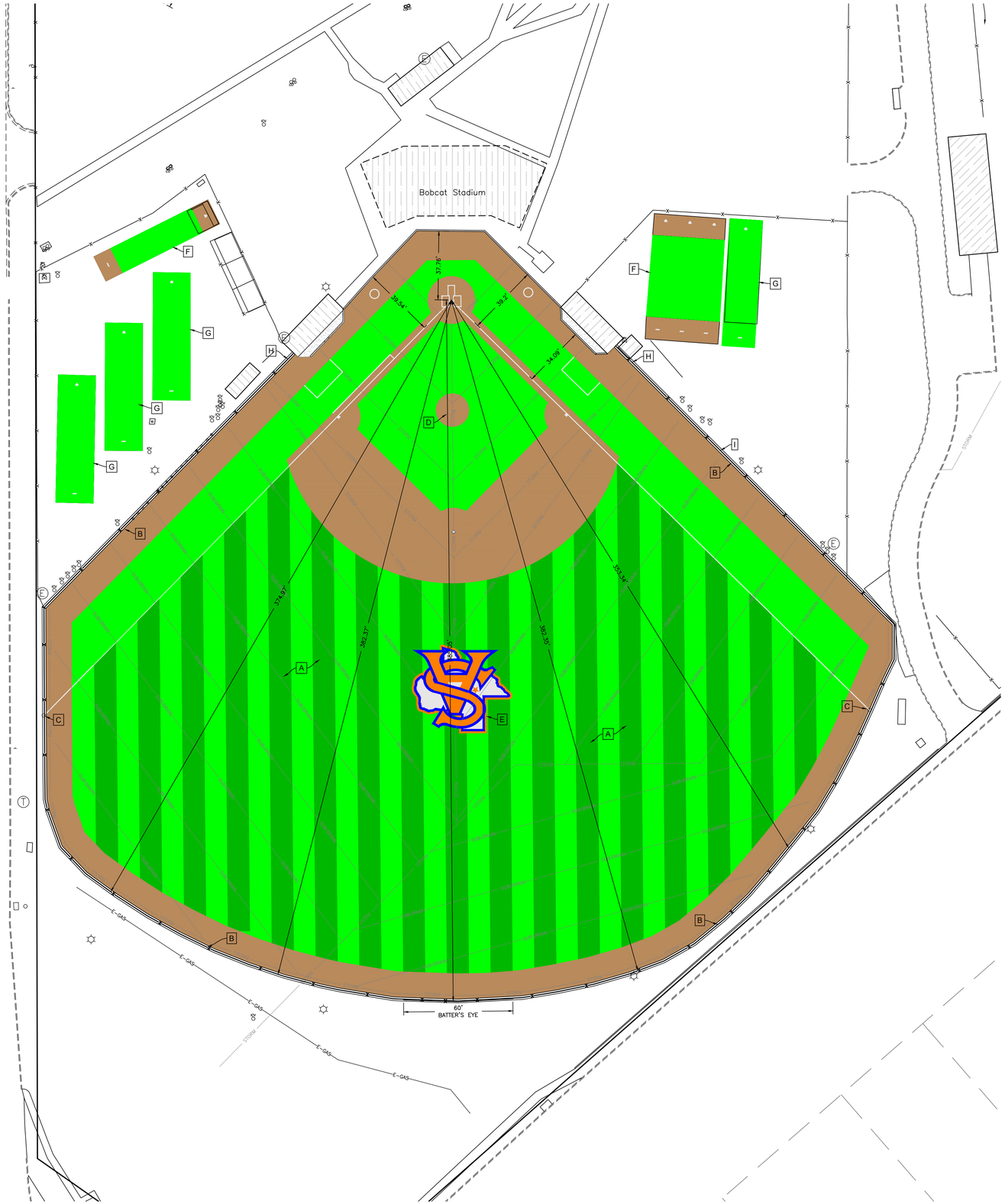
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
CENTRAL HIGH SCHOOL
BASEBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
DLH	MAR. 2, 2026
JOB NO.	SHEET NO.
25-E-1488	A-C0.1
SCALE:	
1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade to a minimum 95% Standard Proctor Density.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner across turf area and perimeter collector drain trench.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install flat panel drains at 30' O.C. per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and laser grade to design elevations in all areas to receive synthetic turf.

9. Provide and install concrete mow strip, outfield fence, black vinyl chainlink fence along sidelines, and reinforced concrete curbing surrounding the perimeter of the synthetic turf.

10. Provide and install a 2'X4' composite turf anchor system.

11. Provide and install Infilled Synthetic Turf system with layout/inlays for baseball per rendering.

12. Provide and install 5" reinforced concrete pitching mounds in the playing field and bull pens. Base sliding areas, batter's boxes, catchers areas and pitching mound landing area installed with 80 synthetic turf

13. Provide and install the following equipment:
- One (1) set – bases
- Eight (8) – home plates
- Eight (8) – pitching rubbers
- Two (2) – 30' foul poles
- Remove and replace Two (2) dugout railing and Padding.

14. Provide to owner:
- Twelve (12) replacement panels for "High traffic" areas.
- One TCA 1400 Turf sweeper by SMG.
- Owner care and maintenance orientation.
- 8-year manufacturer warranty

15. Project cleanup and restoration of disturbed area.

KEYED NOTES:

A	NEW ARTIFICIAL TURF FIELD WITH COMPLETE WITH BASEBALL MARKINGS AND LOGO.
B	NEW CONCRETE MOW STRIP, OUTFIELD FENCE, BLACK VINYL FENCE ALONG SIDELINES, 15'T x 60'W BATTER'S EYE.
C	NEW 30' FOUL POLE.
D	NEW PITCHING MOUND, RUBBER, AND BASES.
E	NEW 55'X55' INLAY LOGO. DESIGN AND LOCATION AS APPROVED BY OWNER.
F	NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BULLPEN.
G	NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BATTING CAGE.
H	SINGLE GATE. COORDINATE LOCATION WITH OWNER.
I	20' DOUBLE GATE. COORDINATE LOCATION WITH OWNER.

LEGEND

- DARK COLOR TURF
- LIGHT COLOR TURF
- BROWN COLOR TURF
- PERIMETER RIBBON CURB

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1285
FAX: 325.657.8189
765 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

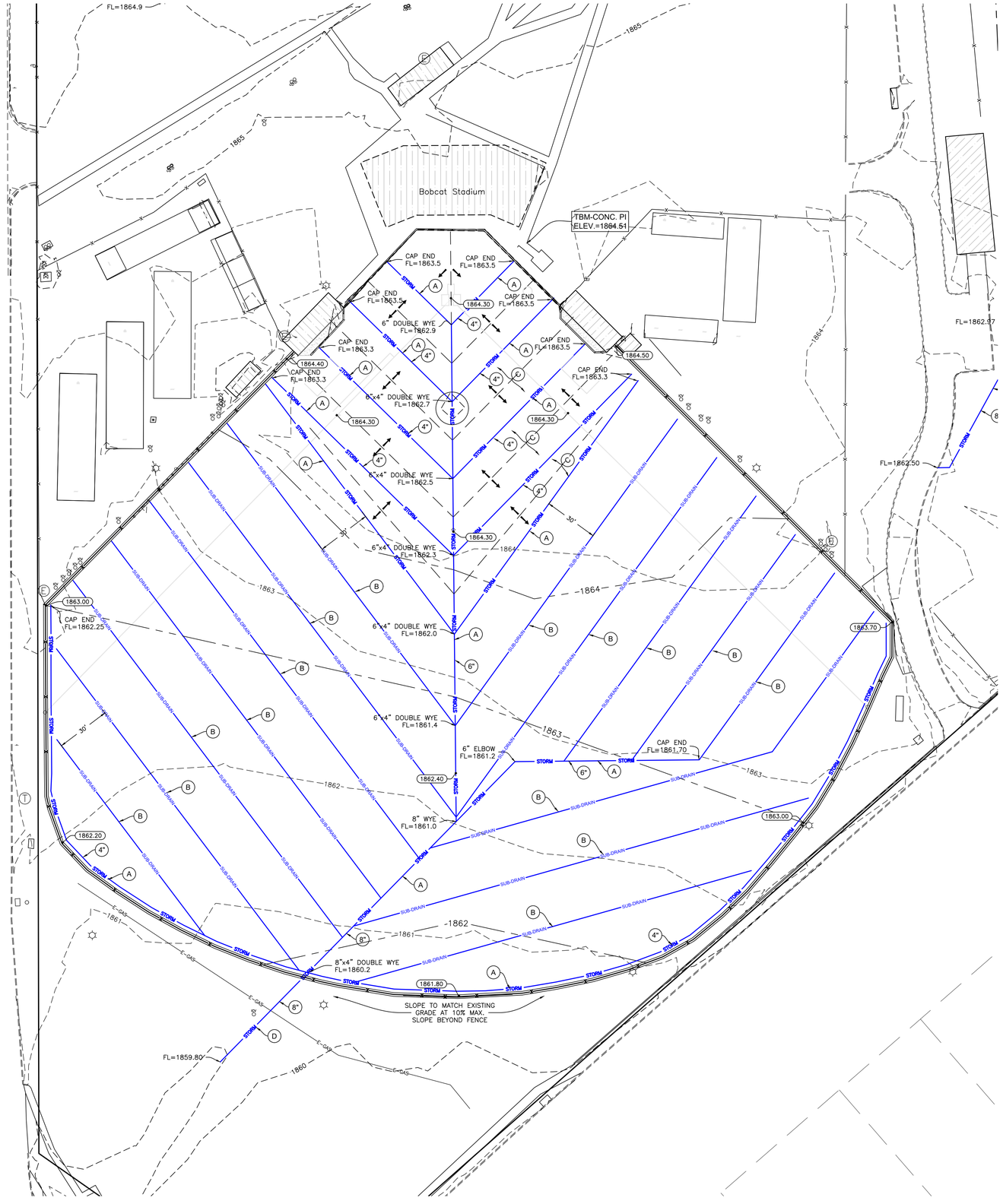
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
CENTRAL HIGH SCHOOL
BASEBALL FIELD

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO: 25-E-1488	SHEET NO. A-C1.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.4% MIN. SLOPE TO CONNECTION AT EXISTING STORM DRAIN LINE. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) SLOPE SUBGRADE AT 0.5% TOWARDS STORM DRAIN LINE FROM HIGH RIDGE AT EQUAL DISTANCE.

(D) WATER TIGHT STORM DRAIN PIPE @ 0.2% MIN. SLOPE. SIZE AS INDICATED ON PLAN.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 1865.40 PROPOSED SPOT ELEVATION
- E--STORM EXISTING STORMSEWER
- STORM PROPOSED STORMSEWER
- SUB-DRAIN PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RO@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC F-7608 MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

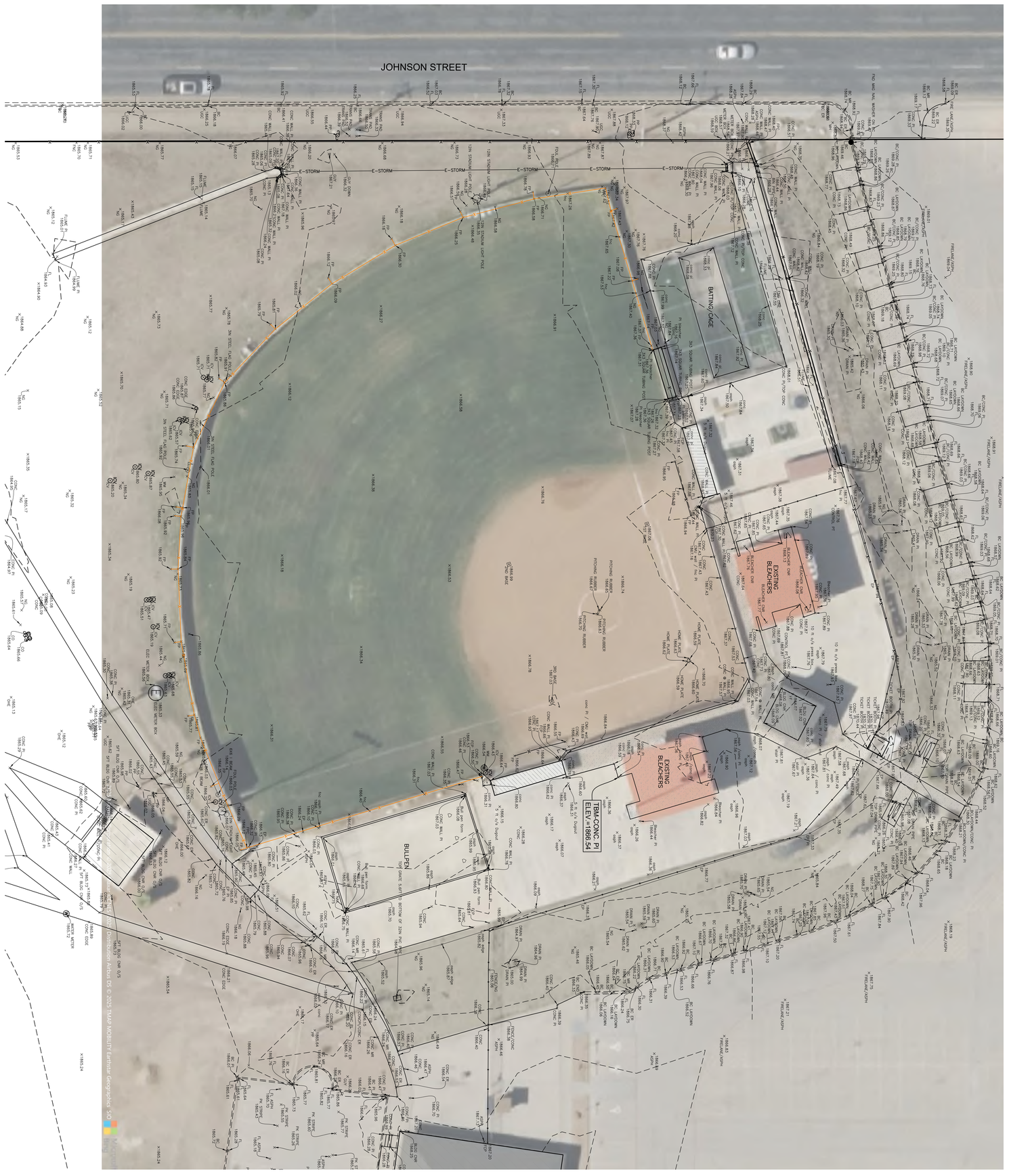
GRADING AND DRAINAGE PLAN
CENTRAL HIGH SCHOOL
BASEBALL FIELD

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. A-C2.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg

N:\Engineering\2025\25E1488 SASD Athletic Projects\25E1488-A to C .SA STADIUM.dwg



LEGEND

- PROPERTY LINE
- × 1865.22 SPOT ELEVATION
- 1866 CONTOUR LINE
- BUILDING
- CONCRETE
- CURB AND GUTTER
- FENCE TO BE REMOVED

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from above ground appurtenances. Therefore, this map does not guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

0 10 20 40 80

GRAPHIC SCALE 80 40 20 10 0 FEET

JOB NO.	25E-1488
SCALE	1"=20'
DWG BY	DLH
DWG. DATE	MAR. 2, 2026
SHEET NO.	B-C0.1
REVISIONS	

TOPOGRAPHIC SURVEY
CENTRAL HIGH SCHOOL
SOFTBALL FIELD

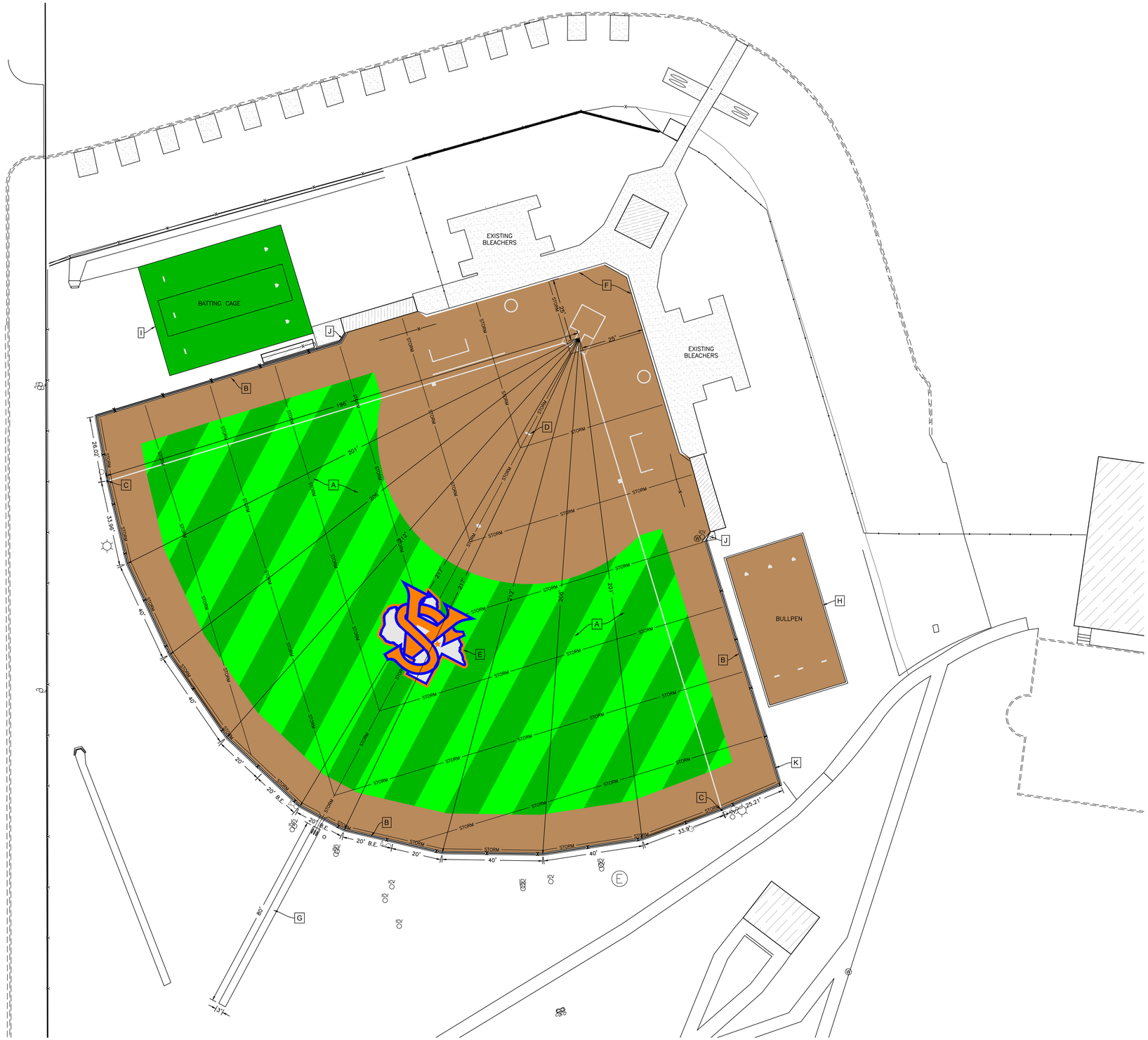
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

SAN ANGELO ISD

STATE OF TEXAS
RUSSELL T. GULLY
87727
REGISTERED PROFESSIONAL LAND SURVEYOR

THIS DOCUMENT RELEASED FOR THE PURPOSES OF REVIEW UNDER THE AUTHORITY OF RUSSELL T. GULLY, R.P.L.S. NO. 6727 ON MAR. 2, 2026. IT IS NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com



PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade to a minimum 95% Standard Proctor Density.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner below turf area and all collector drain trenches.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install perforated and flat panel drains per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and laser grade to design elevations in all areas to receive synthetic turf.

9. Provide and install U-PANEL Outfield Fence, black vinyl chainlink fence along sidelines, and 12'x12' reinforced concrete curbing surrounding the perimeter of the synthetic turf.

10. Provide and install a 2"X4" composite turf anchor system.

11. Provide and install Infilled Synthetic Turf system with layout/inlays for softball per rendering.

12. Provide and install 5" reinforced concrete pitching mounds in the playing field and bull pens. Base sliding areas, batter's boxes, catchers areas and pitching mound landing area installed with 80 synthetic turf

13. Provide and install the following equipment:
- One (1) set – bases
- Eight (8) – home plates
- Eight (8) – pitching rubbers
- Two (2) – 30 foul poles
- Remove and replace Two (2) dugout railing and Padding.
- Remove and replace the existing netting system with new netting along backstop.

14. Provide to owner:
- Twelve (12) replacement panels for "High traffic" areas.
- Owner care and maintenance orientation.
- 8-year manufacturer warranty

15. Project cleanup and restoration of disturbed area.

KEYED NOTES:

- A — NEW ARTIFICIAL TURF FIELD WITH COMPLETE WITH SOFTBALL MARKINGS AND LOGO.
- B — NEW CONCRETE MOW STRIP, OUTFIELD FENCE, BLACK VINYL FENCE ALONG SIDELINES, 15'T x 60'W BATTER'S EYE.
- C — NEW 30' FOUL POLE.
- D — NEW PITCHING MOUND, RUBBER, AND BASES.
- E — NEW 40'X40' INLAY LOGO. DESIGN AND LOCATION APPROVED BY OWNER.
- F — NEW BACKSTOP CABLING AND NETTING FROM DUGOUT TO DUGOUT.
- G — CONCRETE INVERT.
- H — NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BULLPEN.
- I — NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BATTING CAGE.
- J — SINGLE GATE. COORDINATE LOCATION WITH OWNER.
- K — 20' DOUBLE GATE. COORDINATE LOCATION WITH OWNER.

LEGEND

- DARK COLOR TURF
- LIGHT COLOR TURF
- BROWN COLOR TURF
- PERIMETER RIBBON CURB

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.

GRAPHIC SCALE 80 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

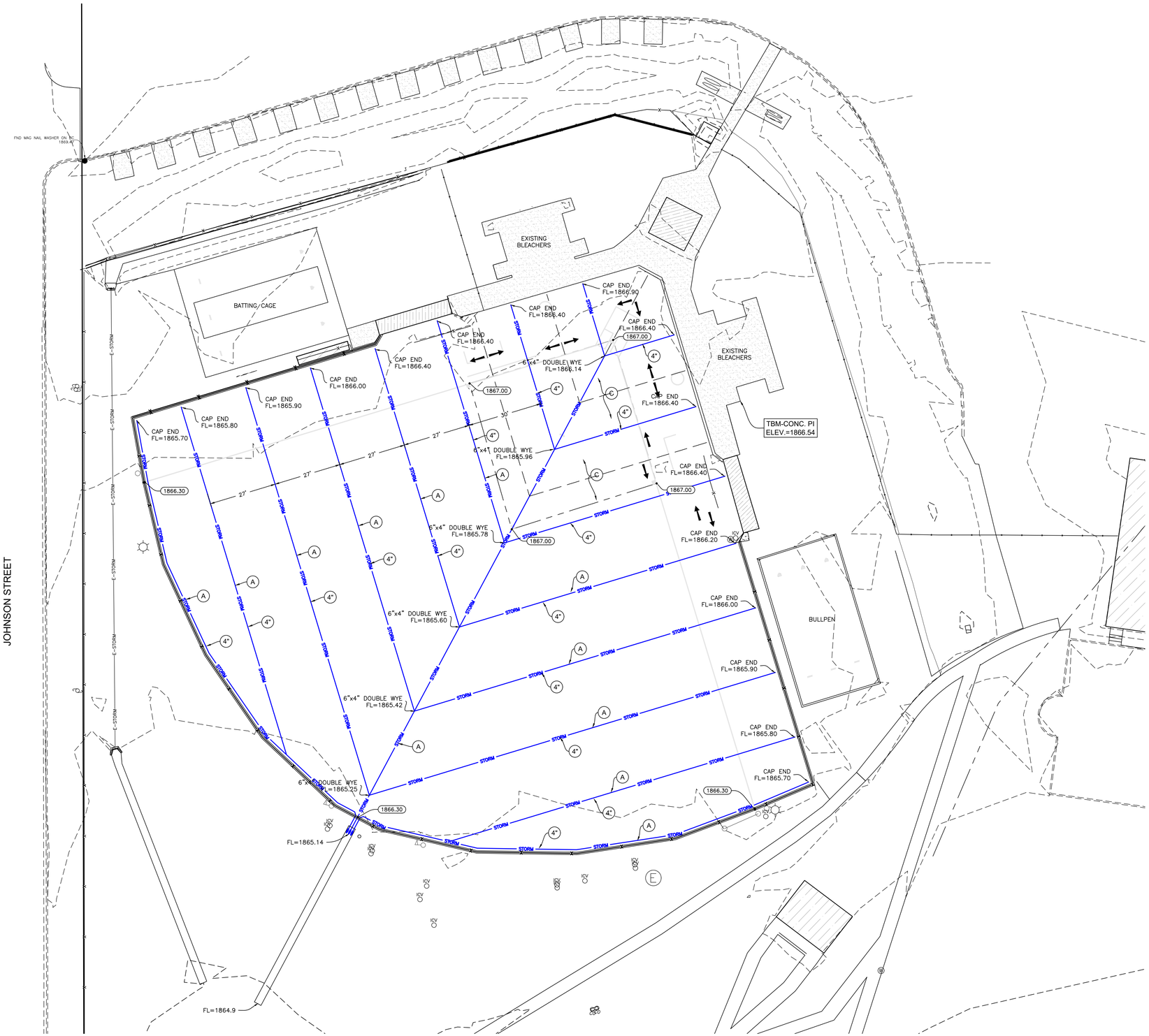
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
CENTRAL HIGH SCHOOL
SOFTBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 2, 2026
JOB NO: 25-E-1488	SHEET NO: B-C1.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.4% MIN. SLOPE TO CONNECTION AT DRAIN LINE. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) SLOPE SUBGRADE AT 0.5% TOWARDS STORM DRAIN LINE FROM HIGH RIDGE AT EQUAL DISTANCE.

LEGEND

- x1866.20 — EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- PROPOSED CONTOUR
- 1867.40 — PROPOSED SPOT ELEVATION
- E-STORM — EXISTING STORMSEWER
- STORM — PROPOSED STORMSEWER
- SUB-DRAIN — PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC F-7608
MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

GRADING AND DRAINAGE PLAN
CENTRAL HIGH SCHOOL
SOFTBALL FIELD

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. B-C2.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtr.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
CENTRAL HIGH SCHOOL
FOOTBALL FIELD

LEGEND

- PROPERTY LINE
- x 1864.22 SPOT ELEVATION
- 1864 CONTOUR LINE
- BUILDING
- CONCRETE
- CURB AND GUTTER

UTILITY LOCATIONS

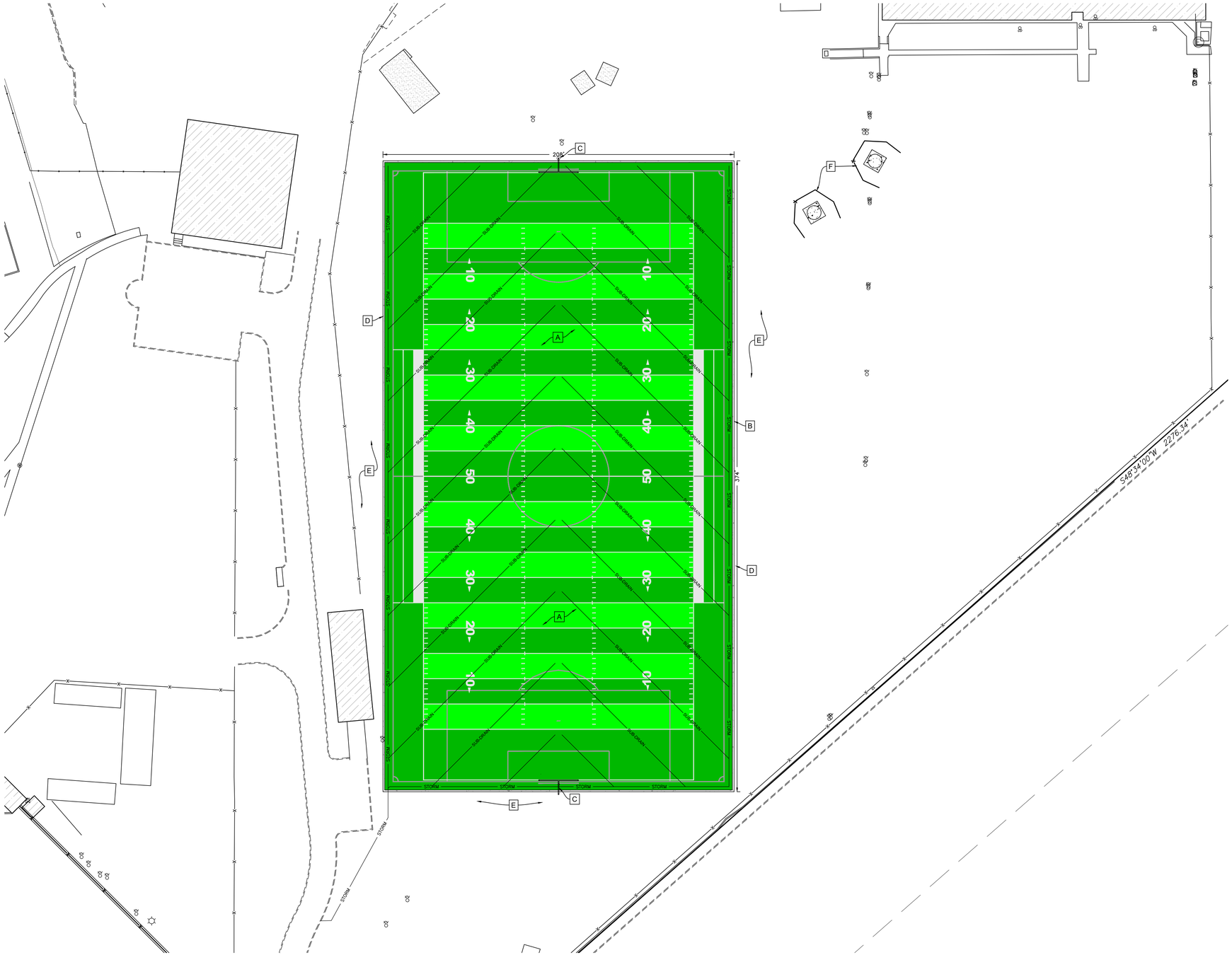
The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

120 GRAPHIC SCALE 60 30 15 0 FEET

REVISIONS

DWG BY:	DWG. DATE:
DLH	MAR. 2, 2026
JOB NO: 25-E-1488	SHEET NO. C-C0.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade to a minimum 95% Standard Proctor Density.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner below turf area and perimeter collector drain trench.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install flat panel drains at 30' O.C. per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and laser grade to design elevations in all areas to receive synthetic turf.

9. Provide and install one set of Goal post with padding, 8' offset, and 30' uprights.

10. Provide ribbon curb around perimeter synthetic turf.

11. Provide and install a 2'X4' composite turf anchor system.

12. Provide and install Infilled Synthetic Turf system with layout/inlays for football and soccer per rendering.

13. Provide and install topsoil and grass sod around perimeter.

14. Provide two new discus events with new concrete slab and ring. Relocate cage from existing.

15. Project cleanup and restoration of disturbed area.

KEYED NOTES:

- A — NEW ARTIFICIAL TURF FIELD WITH COMPLETE FOOTBALL AND SOCCER MARKINGS.
- B — PERIMETER CONCRETE CURB.
- C — NEW GOAL POST WITH FOUNDATION.
- D — PERIMETER RIBBON CURB.
- E — PROVIDE TOPSOIL BETWEEN EDGE OF RIBBON CURB AND EXISTING VEGETATION AND TOP WITH SOLID SOD OF TIF-TUF BERMUDA.
- F — NEW DISCUS EVENT SLAB AND RING. RELOCATE CAGE FROM EXISTING SLABS TO BE REMOVED. FINAL LOCATION PER OWNER.

LEGEND

- PROPERTY LINE
- DARK COLOR TURF
- LIGHT COLOR TURF
- CONCRETE
- PERIMETER RIBBON CURB

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
CENTRAL HIGH SCHOOL
FOOTBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 2, 2026
JOB NO.	SHEET NO.
25-E-1488	C-C1.1
SCALE:	
1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.5% MIN. SLOPE TO OUTLET. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

LEGEND

x1864.20	EXISTING SPOT ELEVATION
	EXISTING CONTOUR
	PROPOSED CONTOUR
1865.40	PROPOSED SPOT ELEVATION
E--STORM	EXISTING STORMSEWER
STORM	PROPOSED STORMSEWER
SUB-DRAIN	PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC F-7608
MAR. 2, 2026

SAN ANGELO ISD

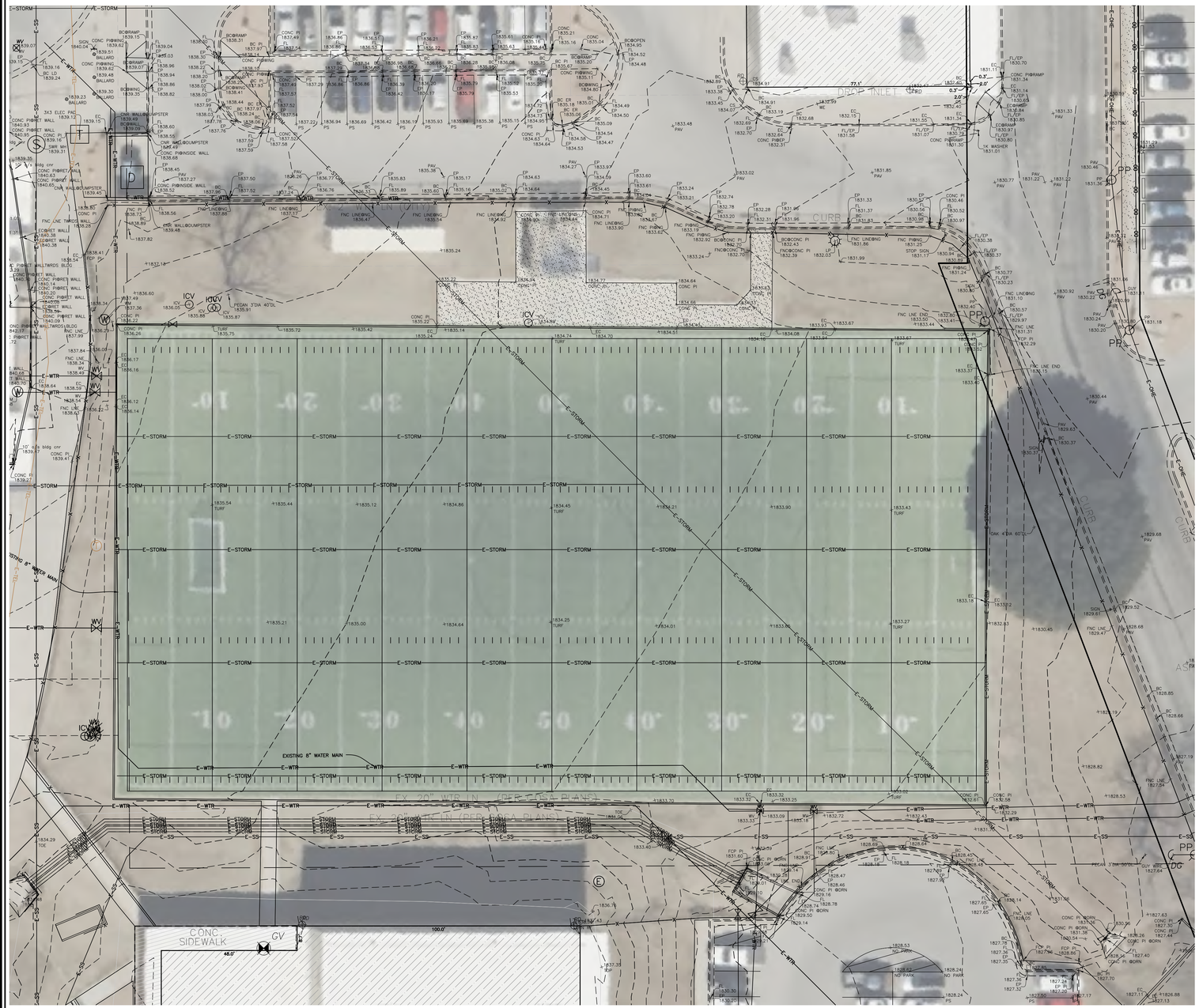
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

GRADING AND DRAINAGE PLAN
CENTRAL HIGH SCHOOL FOOTBALL FIELD

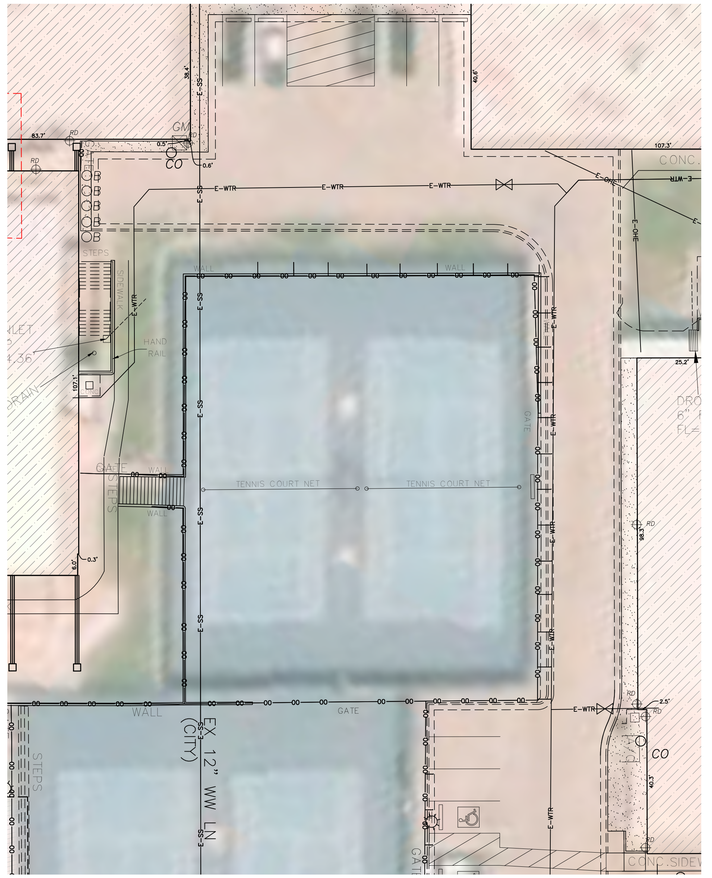
REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. C-C2.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-A To C_SA STADIUM.dwg



BAND PRACTICE FIELD



TENNIS COURT LIGHTING

LEGEND

x 1829.62	SPOT ELEVATION
1830	CONTOUR LINE
	BUILDING
	CONCRETE
	CURB AND GUTTER

UTILITY LOCATIONS
The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC # F-7608
MAR. 3, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
CENTRAL HIGH SCHOOL
BAND PRACTICE FIELD

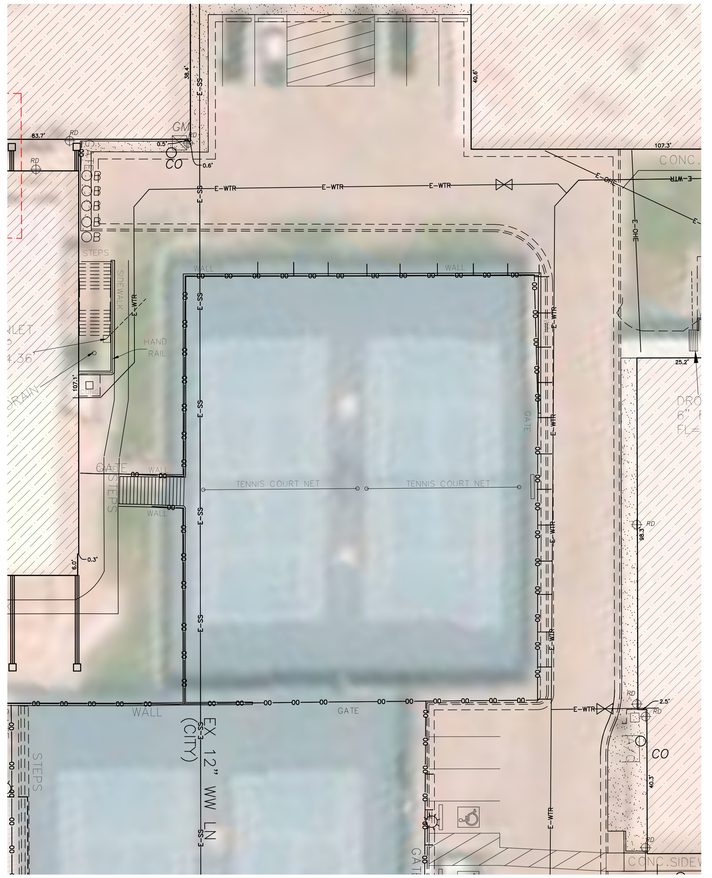
REVISIONS

DWG BY: DLH	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. D-C0.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-D_CENTRAL BAND FIELD.dwg



BAND PRACTICE FIELD



TENNIS COURT LIGHTING

LEGEND

x 1829.62	SPOT ELEVATION
1830	CONTOUR LINE
	BUILDING
	CONCRETE
	CURB AND GUTTER

UTILITY LOCATIONS
The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET PHONE: 325.655.1285
SAN ANGELO, TEXAS 76903 FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7609 & 10102400
www.skgtx.com

THIS DOCUMENT IS RELEASED FOR INTERIM REVIEW UNDER THE AUTHORITY OF RUSSELL T. GULLY, P.E. 87727. IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.

MAR. 3, 2026

SAN ANGELO ISD

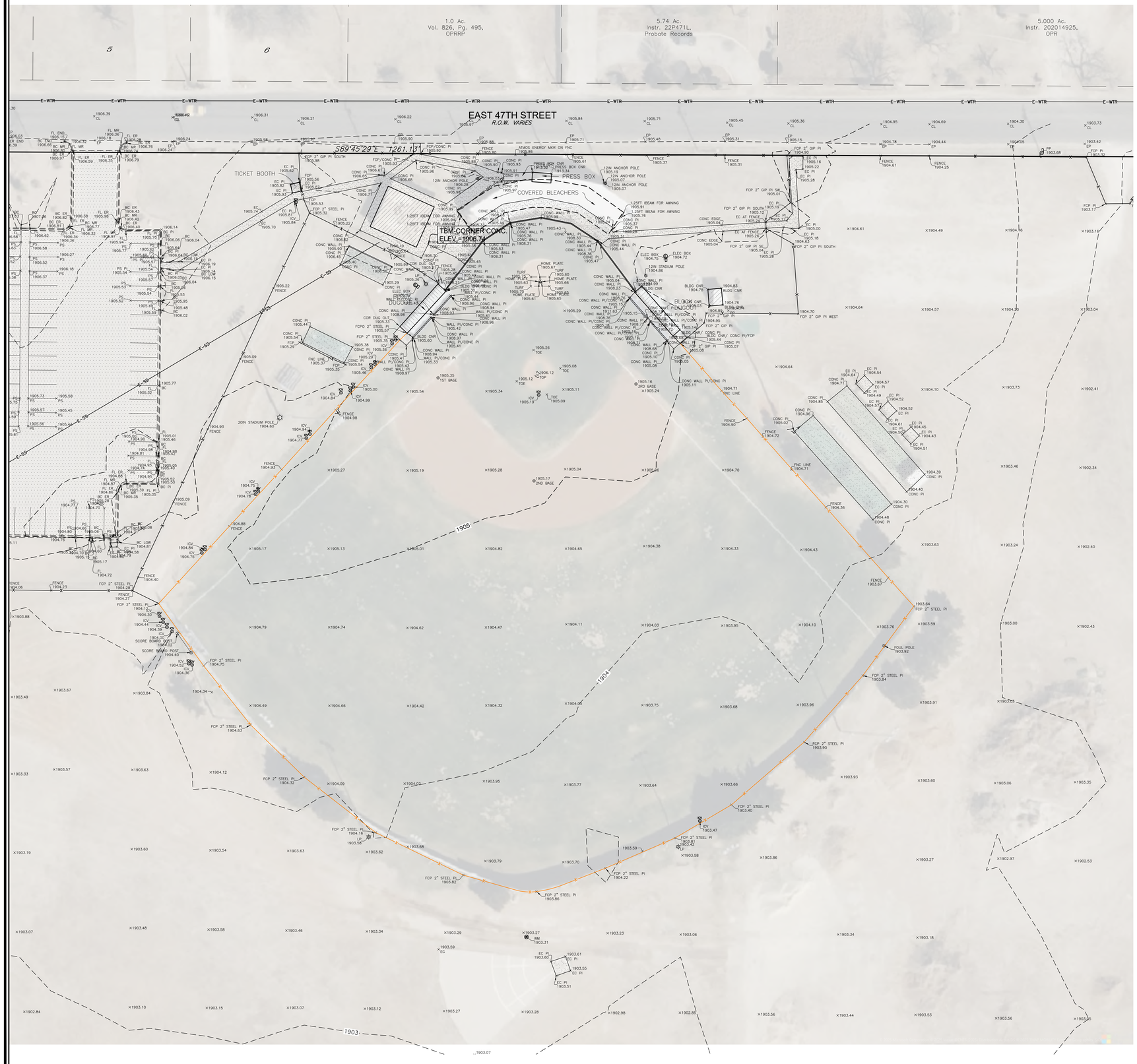
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
CENTRAL HIGH SCHOOL
BAND PRACTICE FIELD

REVISIONS

DWG BY: DLH	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. D-C0.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-D_CENTRAL BAND FIELD.dwg

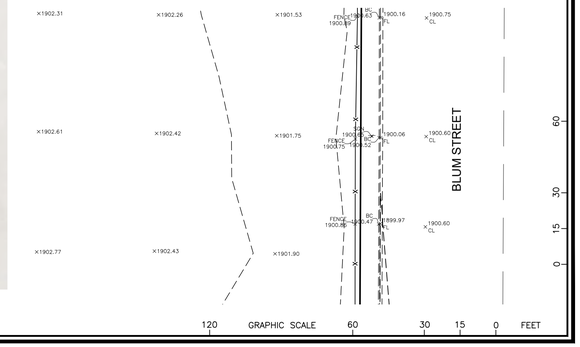


LEGEND

- PROPERTY LINE
- x 1904.22 SPOT ELEVATION
- 1905 CONTOUR LINE
- BUILDING
- CONCRETE
- CURB AND GUTTER
- FENCE TO BE REMOVED

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.



GRAPHIC SCALE 120 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. #87727
SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

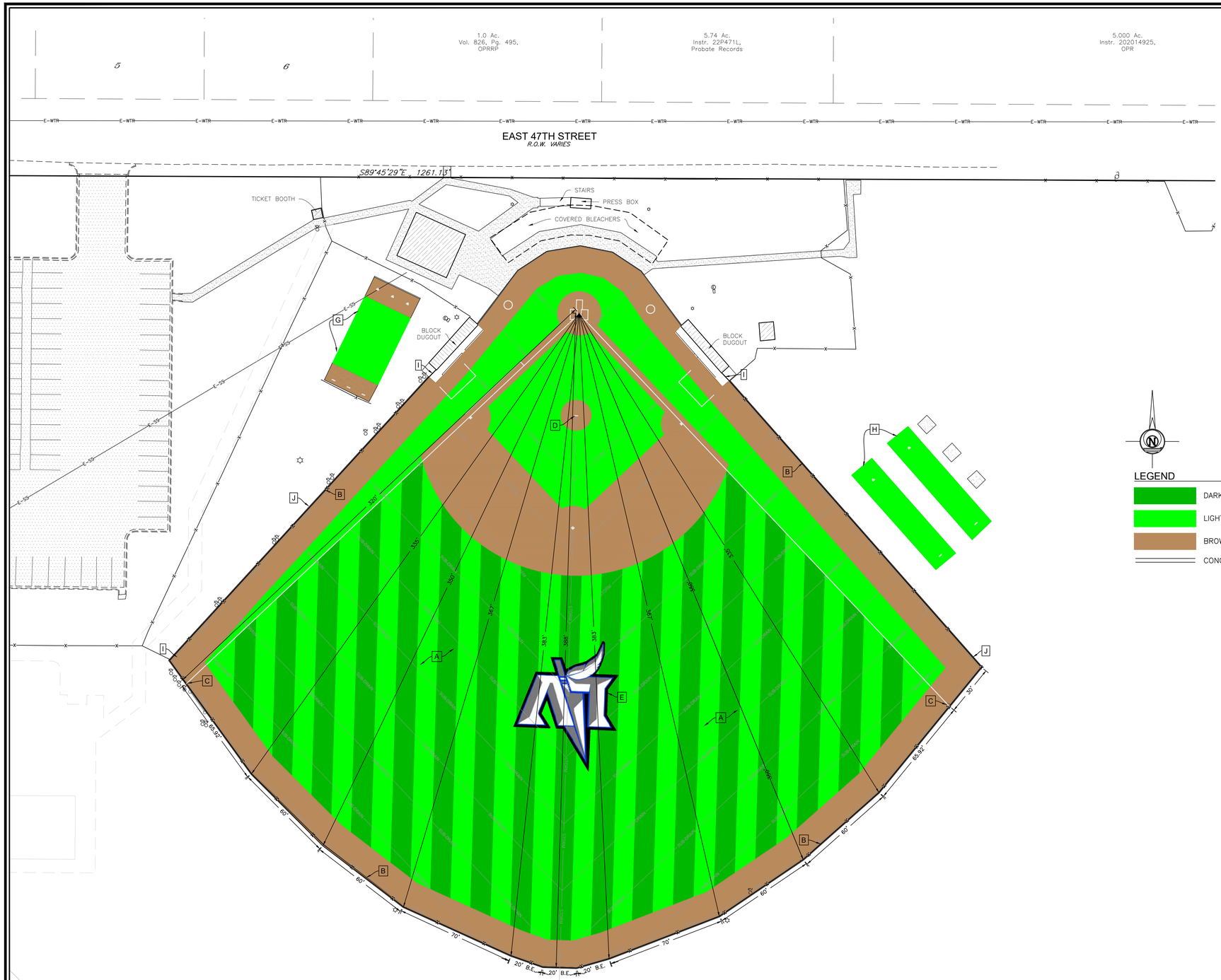
SAN ANGELO ISD
ATHLETIC FIELDS PROJECTS
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LAKE VIEW HIGH SCHOOL
BASEBALL FIELD

REVISIONS

DWG BY: DLH	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. E-C0.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



LEGEND

- DARK COLOR TURF
- LIGHT COLOR TURF
- BROWN COLOR TURF
- CONCRETE MOW STRIP

PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner across turf area and perimeter collector drain trench.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install flat panel drains at 30' O.C. per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and laser grade to design elevations in all areas to receive synthetic turf.

9. Provide and install concrete mow strip, outfield fence, black vinyl chainlink fence along sidelines, and composite nailer around the perimeter of the synthetic turf.

10. Provide and install a 2"X4" composite turf anchor system.

11. Provide and install Infilled Synthetic Turf system with layout/inlays for baseball per rendering.

12. Provide and install 5" reinforced concrete pitching mounds in the playing field and bull pens. Base sliding areas, batter's boxes, catchers areas and pitching mound landing area installed with 80 synthetic turf

13. Provide and install the following equipment:
- One (1) set – bases
- Six (6) – home plates
- Six (6) – pitching rubbers
- Two (2) – 30' foul poles
- Remove and replace Two (2) dugout railing and Padding.

14. Provide to owner:
- Twelve (12) replacement panels for "High traffic" areas.
- One TCA 1400 Turf sweeper by SMG.
- Owner care and maintenance orientation.
- 8-year manufacturer warranty

15. Project cleanup and restoration of disturbed area.

KEYED NOTES:

A	NEW ARTIFICIAL TURF FIELD WITH COMPLETE WITH BASEBALL MARKINGS AND LOGO.
B	CONCRETE MOW STRIP, OUTFIELD FENCE, BLACK VINYL FENCE ALONG SIDELINES, 15'T x 60'W BATTER'S EYE (B.E.).
C	NEW 30' FOUL POLE.
D	NEW PITCHING MOUND, RUBBER, AND BASES.
E	NEW 55'x55' INLAY LOGO. DESIGN AND LAYOUT TO BE APPROVED BY OWNER.
F	SAWCUT AND REMOVE STREET CURB, PROVIDE CONCRETE INVERT, TAPER PIPE END AT 1:1 WITH SLOPED CONCRETE AROUND PIPE.
G	NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BULLPEN.
H	NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BATTING CAGE.
I	SINGLE GATE. COORDINATE LOCATION WITH OWNER.
J	20' DOUBLE GATE. COORDINATE LOCATION WITH OWNER.

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

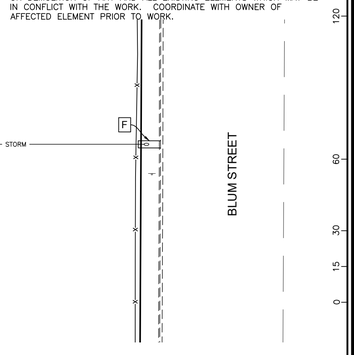
5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.



120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1289
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

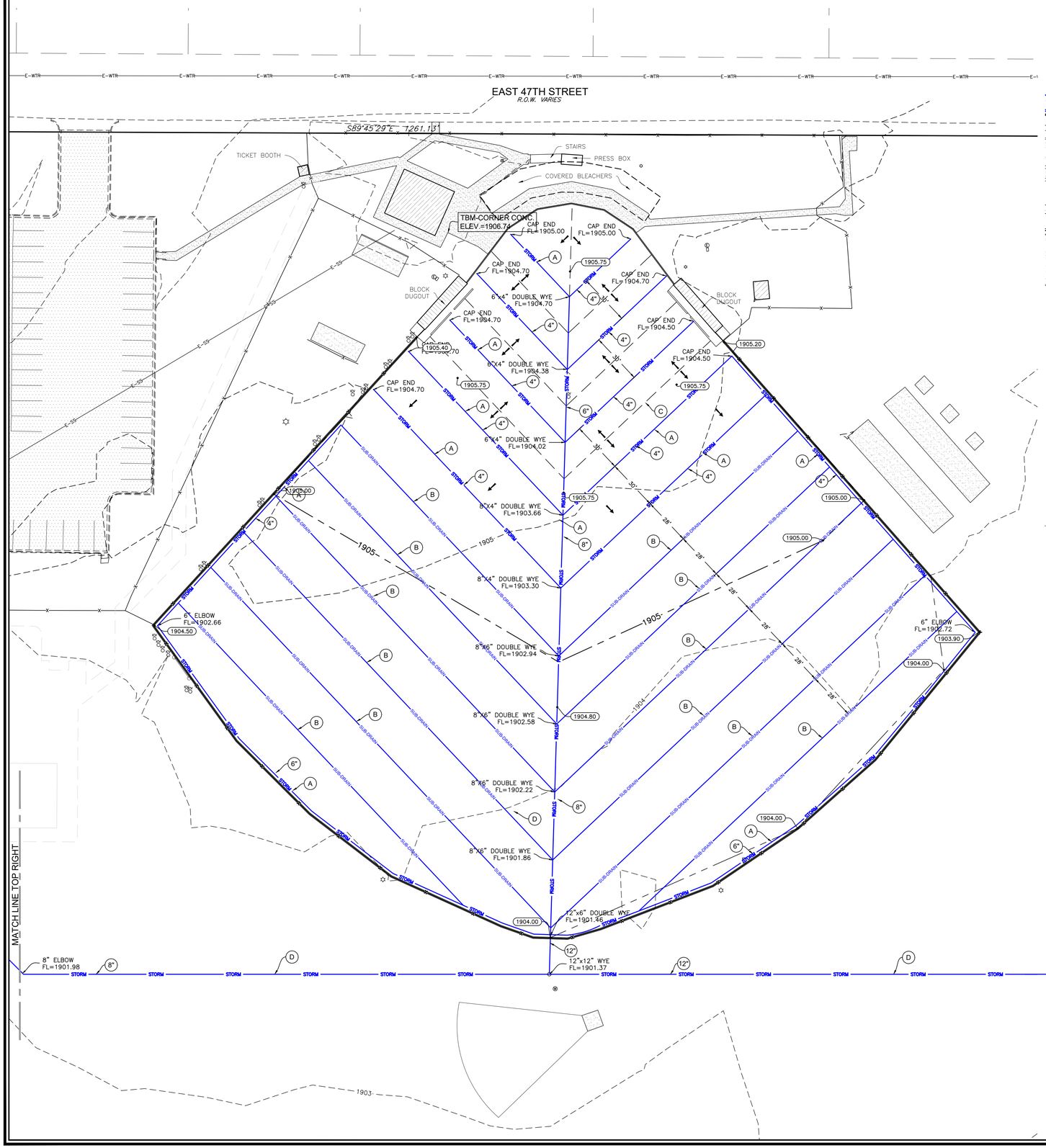
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
LAKE VIEW HIGH SCHOOL
BASEBALL FIELD

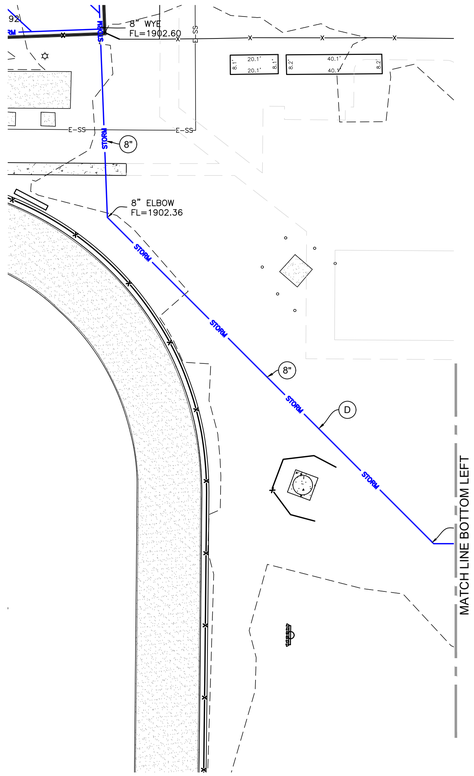
REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. E-C1.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



REFER TO LAKEVIEW SOFBALL FIELD PLANS



KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.2% MIN. SLOPE TO CONNECT STORM DRAIN PIPE. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) SLOPE SUBGRADE AT 0.5% TOWARDS STORM DRAIN LINE FROM HIGH RIDGE AT EQUAL DISTANCE.

(D) WATER TIGHT STORM DRAIN PIPE @ 0.2% MIN. SLOPE. SIZE AS INDICATED ON PLAN.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 1904.20 PROPOSED SPOT ELEVATION
- E-STORM EXISTING STORMSEWER
- STORM PROPOSED STORMSEWER
- SUB-DRAIN PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1285
FAX: 325.657.8189
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC F-7608
MAR. 3, 2026

SAN ANGELO ISD

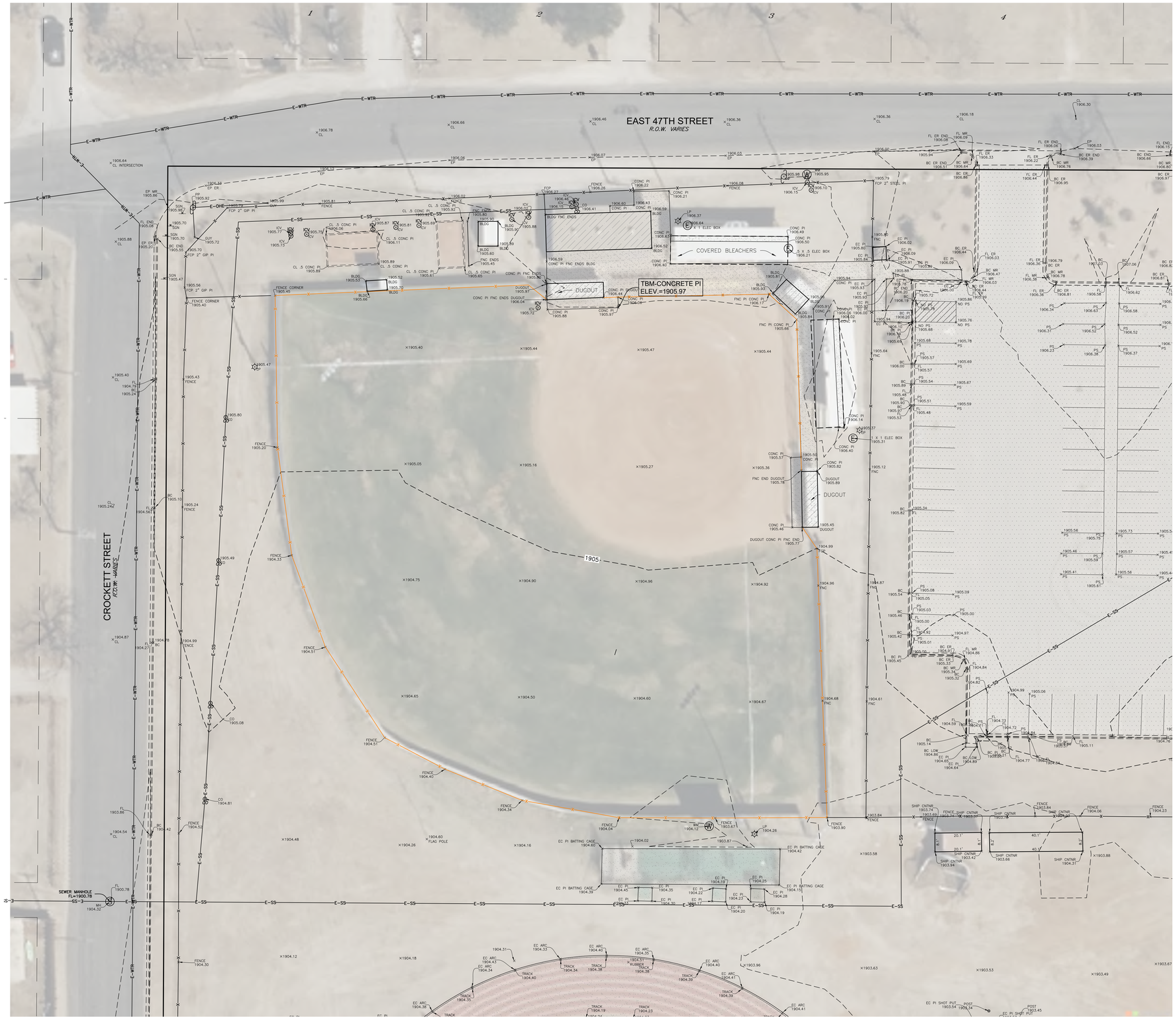
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

GRADING - DRAINAGE PLAN
LAKE VIEW HIGH SCHOOL
BASEBALL FIELD

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. E-C2.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



LEGEND

- PROPERTY LINE
- x 1865.22 — SPOT ELEVATION
- 1866 — CONTOUR LINE
- BUILDING
- CONCRETE
- CURB AND GUTTER
- FENCE TO BE REMOVED

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LABS/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC ##-7608
MAR. 3, 2026

SAN ANGELO ISD

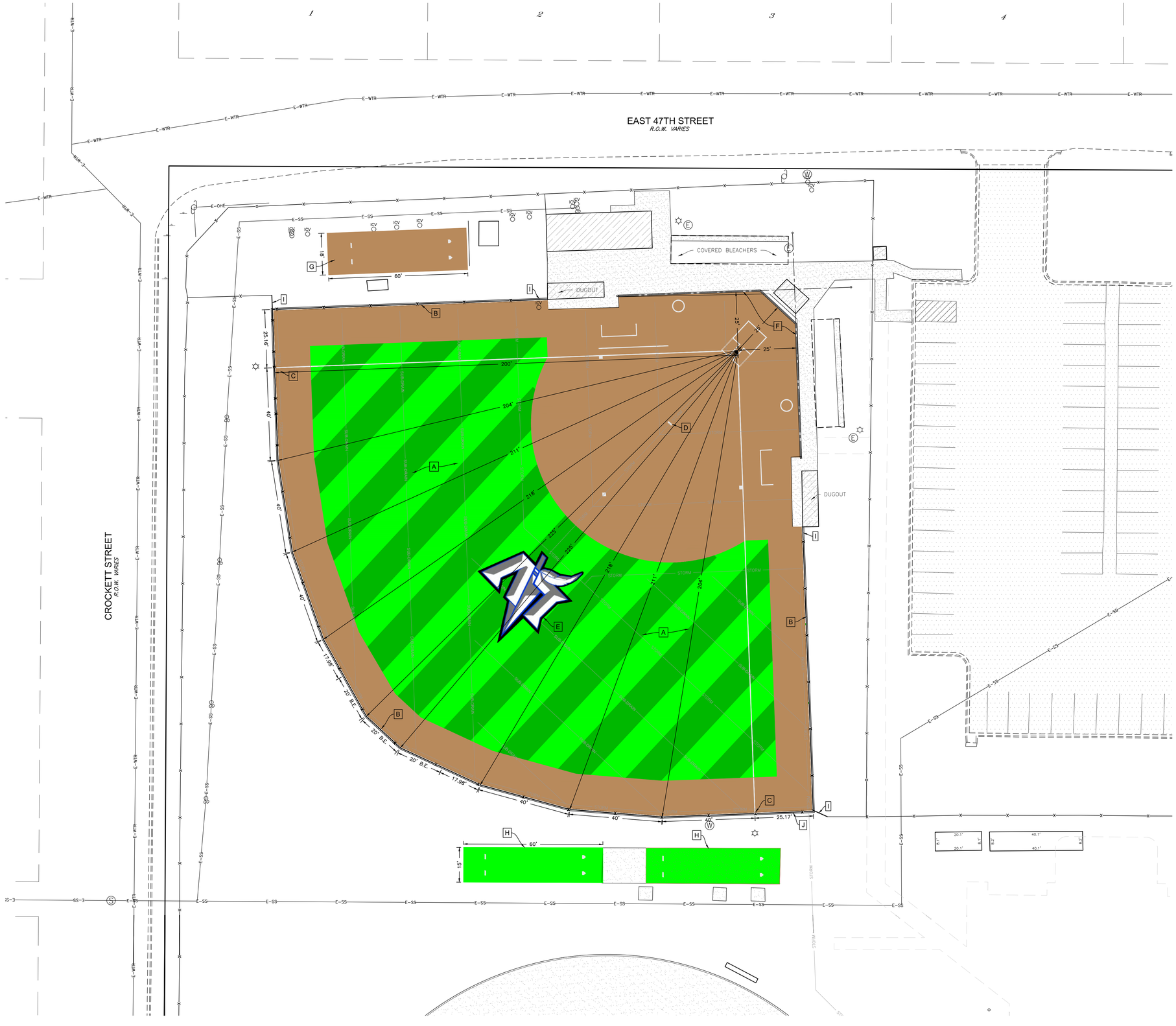
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LAKE VIEW HIGH SCHOOL
SOFTBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
DLH	MAR. 3, 2026
JOB NO.: 25-E-1488	SHEET NO. F-C0.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade to min. 95% Standard Proctor Density.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner below turf area and all collector drain trenches.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install perforated and flat panel drains per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and laser grade to design elevations in all areas to receive synthetic turf.

9. Provide and install concrete mow strip, outfield fence, black vinyl chainlink fence along sidelines, and composite nailer around the perimeter of the synthetic turf.

10. Provide and install a 2'X4' composite turf anchor system.

11. Provide and install Infilled Synthetic Turf system with layout/inlays for softball per rendering.

12. Provide and install 5" reinforced concrete pitching mounds in the playing field and bull pens. Base sliding areas, batter's boxes, catchers areas and pitching mound landing area installed with 80 synthetic turf

13. Provide and install the following equipment:
- One (1) set – bases
- Eight (8) – home plates
- Eight (8) – pitching rubbers
- Two (2) – 30' foul poles
- Remove and replace Two (2) dugout railing and Padding.
- Remove and replace the existing netting system with new netting along backstop.

14. Provide to owner:
- Twelve (12) replacement panels for "High traffic" areas.
- Owner care and maintenance orientation.
- 8–year manufacturer warranty

15. Project cleanup and restoration of disturbed area.

KEYED NOTES:

- [A] NEW ARTIFICIAL TURF FIELD WITH COMPLETE WITH SOFTBALL MARKINGS AND LOGO.
- [B] CONCRETE MOW STRIP, OUTFIELD FENCE, BLACK VINYL FENCE ALONG SIDELINES, 15'T x 60'W BATTER'S EYE (B.E.).
- [C] NEW 30' FOUL POLE.
- [D] NEW PITCHING MOUND, RUBBER, AND BASES.
- [E] NEW 40'x40' INLAY LOGO. DESIGN AND LAYOUT TO BE APPROVED BY OWNER.
- [F] NEW CMU BLOCK WALL, PADDING, AND BACKSTOP NETTING SYSTEM.
- [G] NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BULLPEN.
- [H] NEW CONCRETE SLAB, ARTIFICIAL TURF, HOME PLATE, AND PITCHER'S MOUND IN BATTING CAGE.
- [I] SINGLE GATE. COORDINATE LOCATION WITH OWNER.
- [J] 20' DOUBLE GATE. COORDINATE LOCATION WITH OWNER.

LEGEND

- DARK COLOR TURF
- LIGHT COLOR TURF
- BROWN COLOR TURF
- PERIMETER RIBBON CURB

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1289
FAX: 325.657.8189
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7609 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F–7608 MAR. 3, 2026

SAN ANGELO ISD

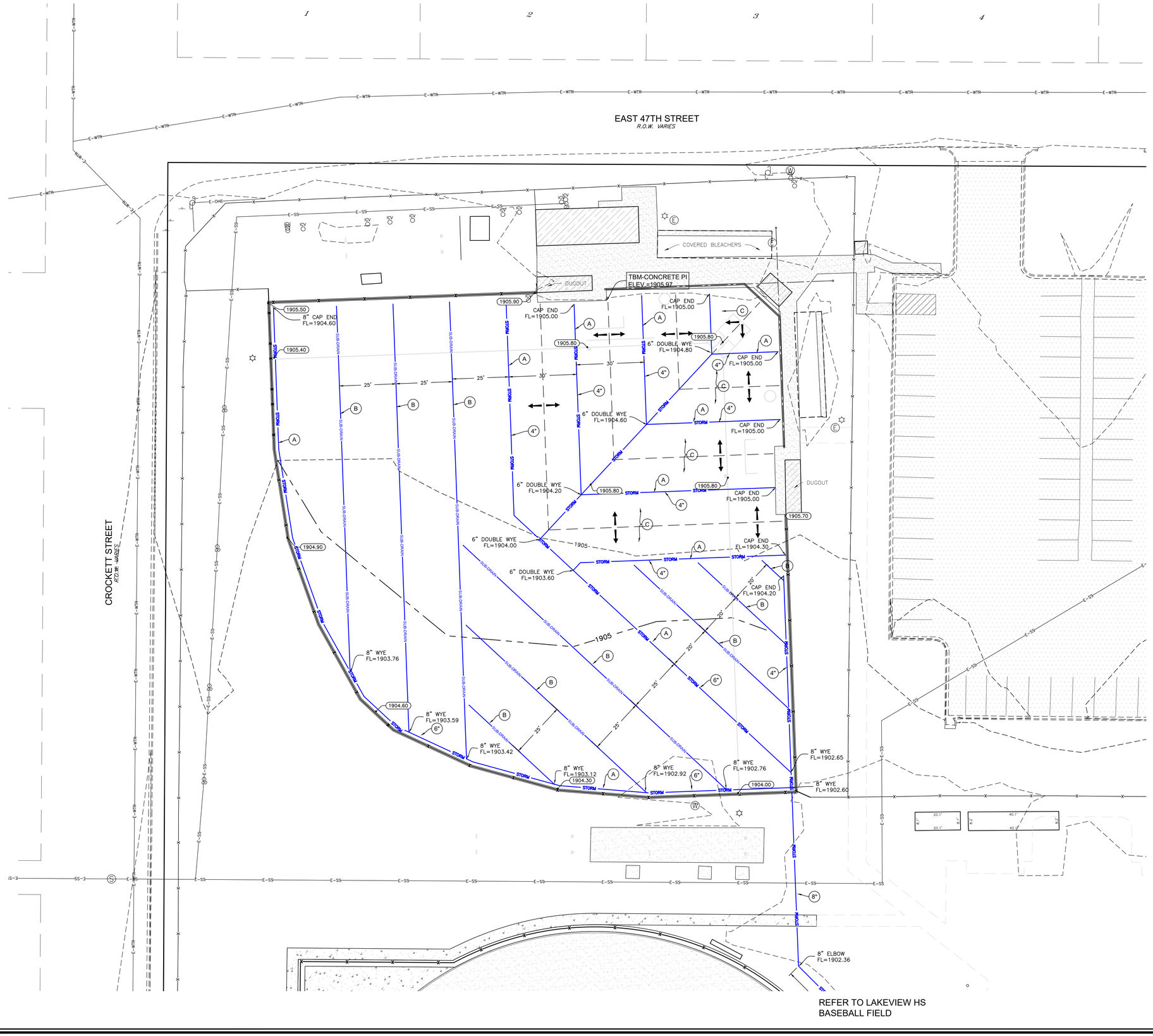
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
LAKE VIEW HIGH SCHOOL
SOFTBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 3, 2026
JOB NO.: 25-E-1488	SHEET NO.: F-C1.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.2% MIN. SLOPE TO CONNECTION AT DRAIN LINE. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) SLOPE SUBGRADE AT 0.5% TOWARDS STORM DRAIN LINE FROM HIGH RIDGE AT EQUAL DISTANCE.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 1904.60 PROPOSED SPOT ELEVATION
- STORM PROPOSED STORMSEWER
- SUB-DRAIN PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RO@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1285
FAX: 325.657.8189
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC. #F-7608
MAR. 3, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

GRADING - DRAINAGE PLAN
LAKE VIEW HIGH SCHOOL
SOFTBALL FIELD

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 3, 2026
JOB NO: 25-E-1488	SHEET NO. F-C2.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1285
FAX: 325.657.8189
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

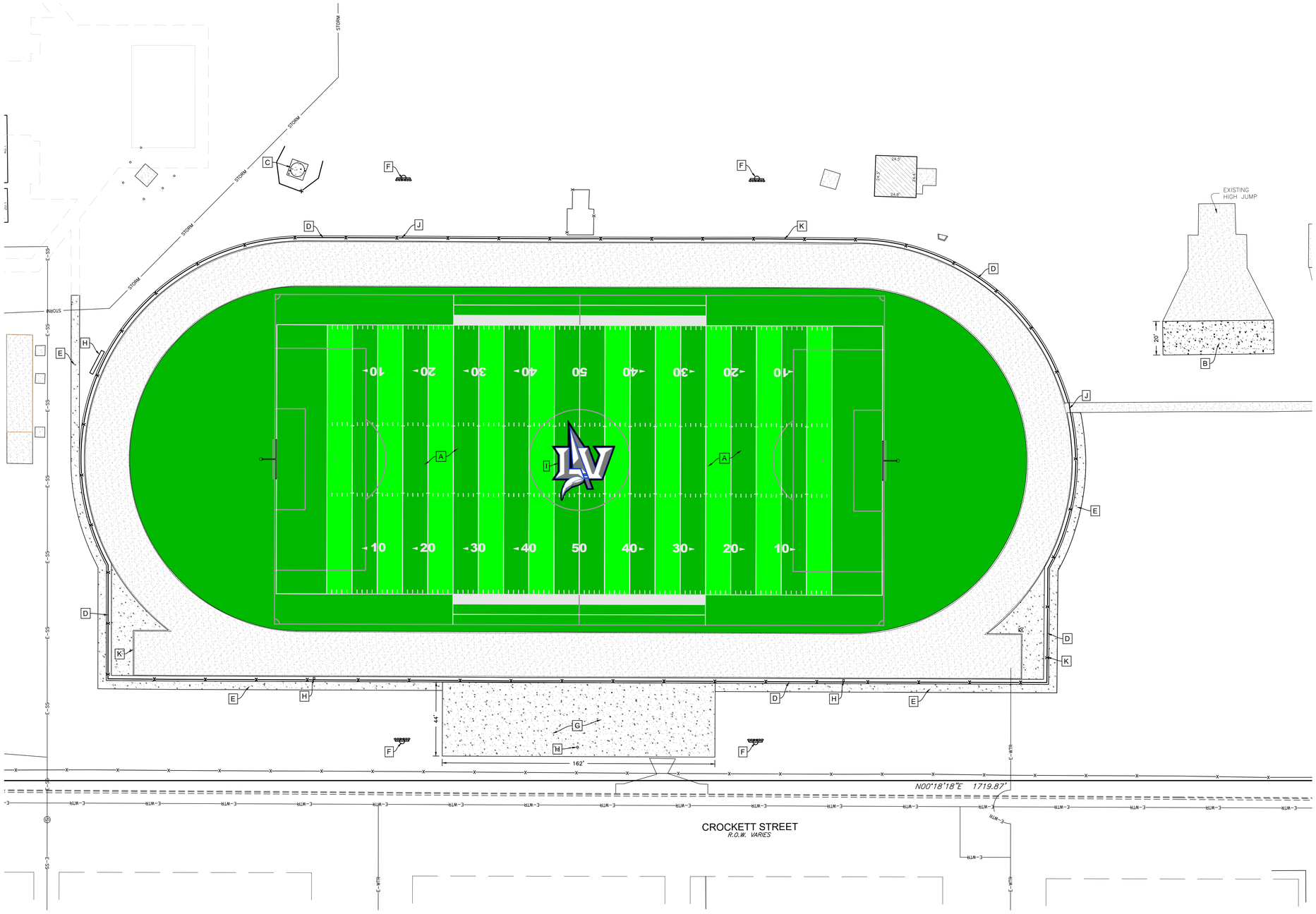
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LAKE VIEW HIGH SCHOOL
FOOTBALL FIELD
DISCUS AND HIGH JUMP

REVISIONS

DWG BY: DLH	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. G-C0.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



PROJECT SUMMARY:

1. Remove and dispose of existing synthetic turf.
2. Laser grade existing stone drainage material.
3. Provide and install a 2'X4' composite turf anchor system.
4. Provide and install Infilled Synthetic Turf system with layout/inlays for football and soccer per rendering.
5. Provide and install new concrete slab at high jump and top with track surface.
6. Provide and install discuss event with concrete, ring, and cage.
7. Provide and install in concrete sidewalk and flatwork for bleachers.
8. Provide and install light poles and lighting package and electrical plugs.
9. Provide and install concrete mow strip and fencing.
10. Project cleanup and restoration of disturbed area.

KEYED NOTES:

A	NEW ARTIFICIAL TURF FIELD WITH COMPLETE FOOTBALL AND SOCCER MARKINGS.
B	1318 SQ. FT. OF NEW CONCRETE AT HIGH JUMP. TOP WITH S200 TRACK SURFACE.
C	DISCUS EVENT WITH CONCRETE, RING, AND CAGE. COORDINATE LOCATION WITH OWNER.
D	4' BLACK VINYL CHAINLINK FENCE AND CONCRETE MOW STRIP.
E	5' WIDE CONCRETE SIDEWALK.
F	FOUR 80' GALVANIZED STEEL LIGHT POLES WITH MUSCO LIGHTING PACKAGE.
G	CONCRETE FLATWORK FOR FUTURE BLEACHERS.
H	PROVIDE SEPARATE 20 AMP, 120 VOLT CIRCUITS: ONE FOR FUTURE SCORE BOARD, ONE AT EACH TIMING STATION, AND THREE FOR A FUTURE PRESSBOX.
I	NEW 40'x40' INLAY LOGO. DESIGN AND LAYOUT TO BE APPROVED BY OWNER.
J	5' SINGLE GATE. COORDINATE LOCATION WITH OWNER.
K	20' DOUBLE GATE. COORDINATE LOCATION WITH OWNER.

LEGEND

DARK COLOR TURF

LIGHT COLOR TURF

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.
2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.
3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.
4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

120 GRAPHIC SCALE 60 30 15 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

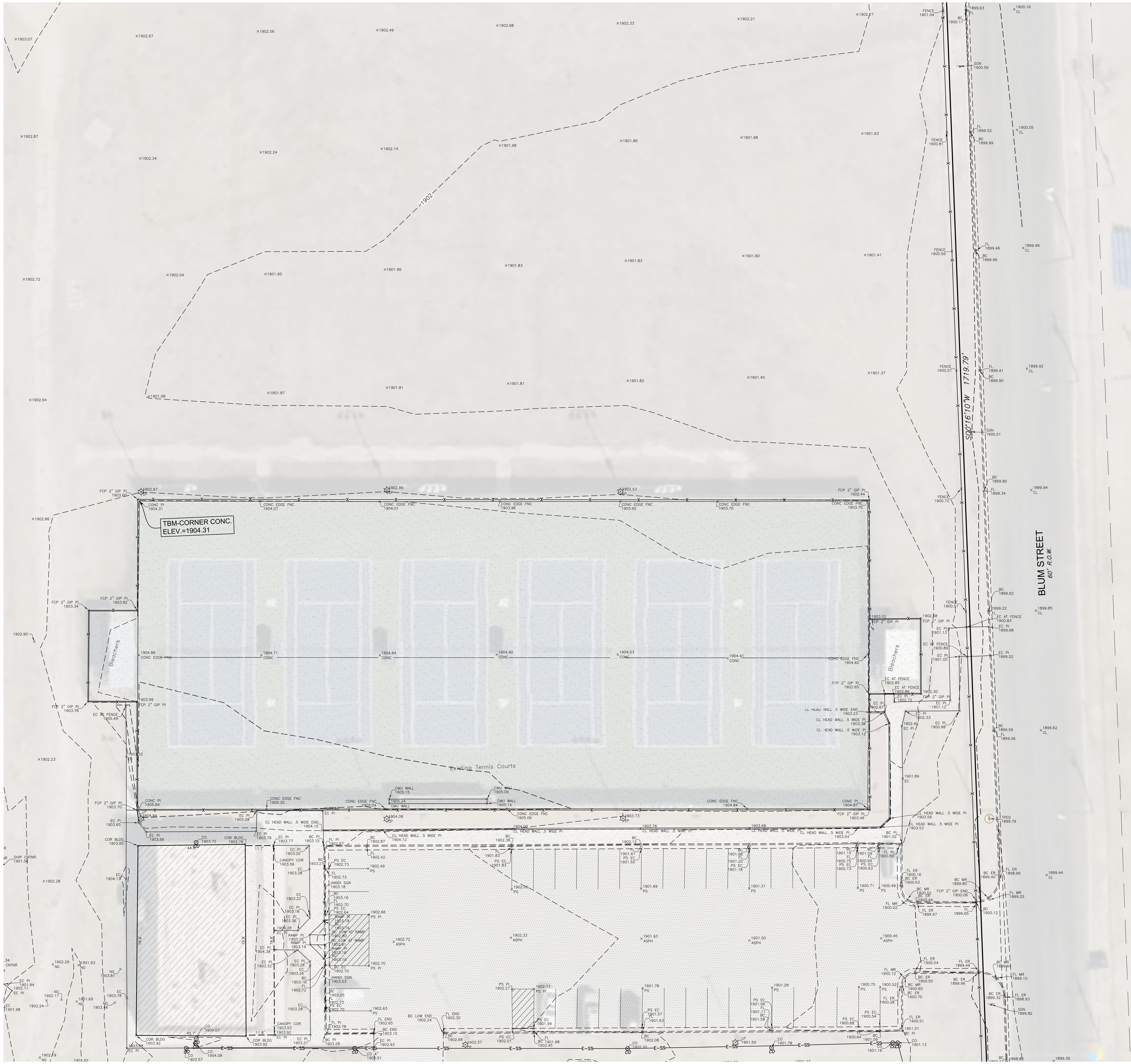
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
LAKE VIEW HIGH SCHOOL
FOOTBALL FIELD
DISCUS AND HIGH JUMP

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. G-C1.1
SCALE: 1"=30'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



LEGEND

———	PROPERTY LINE
× 1902.22	SPOT ELEVATION
— — —1902— — —	CONTOUR LINE
	CONCRETE
=========	CURB AND GUTTER

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F-7608 MAR. 3, 2026

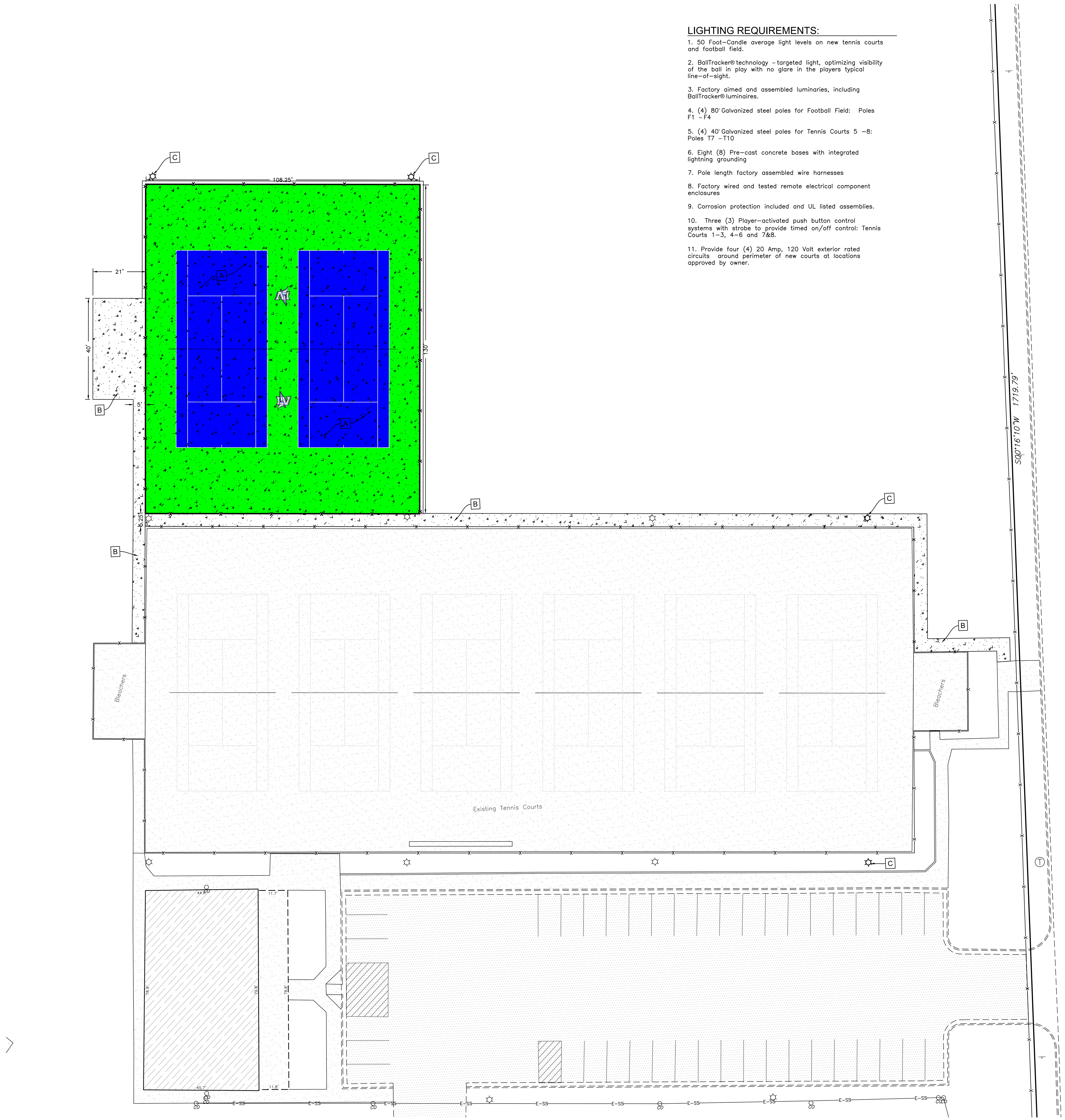
SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LAKE VIEW HIGH SCHOOL
TENNIS COURTS

REVISIONS

DWG BY:	DWG. DATE:
DLH	MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO.
SCALE: 1"=20'	H-C0.1



LIGHTING REQUIREMENTS:

1. 50 Foot-Candle average light levels on new tennis courts and football field.

2. BallTracker® technology - targeted light, optimizing visibility of the ball in play with no glare in the players typical line-of-sight.

3. Factory aimed and assembled luminaries, including BallTracker® luminaires.

4. (4) 80' Galvanized steel poles for Football Field: Poles F1 - F4

5. (4) 40' Galvanized steel poles for Tennis Courts 5 -8: Poles T7 - T10

6. Eight (8) Pre-cast concrete bases with integrated lightning grounding

7. Pole length factory assembled wire harnesses

8. Factory wired and tested remote electrical component enclosures

9. Corrosion protection included and UL listed assemblies.

10. Three (3) Player-activated push button control systems with strobe to provide timed on/off control: Tennis Courts 1-3, 4-6 and 7&8.

11. Provide four (4) 20 Amp, 120 Volt exterior rated circuits around perimeter of new courts at locations approved by owner.

PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Remove existing vegetation/soil for below and five feet beyond new concrete surfaces. Moisture condition and compact top eight inches of subgrade to min. 95% Standard Proctor Density.

3. Furnish and install engineered fill or limestone screenings in accordance with the Geotechnical report as necessary to raise site to required elevations.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and place 2" of limestone screenings for a leveling course.

6. Provide and place 10 mil vapor barrier over leveling course.

7. Construct 14,072 square feet of post tensioned slab, with tendon spacing per engineering.

8. Furnish and install ±456 feet of 10' tall vinyl coated chain link fence including 6 single gates for 4' opening and 3 double gates for 8' opening with mow strip.

9. Construct ±3,392 square feet of concrete sidewalks and flatwork.

10. Furnish and install two (2) sets of 3" Edwards Classic Net Posts and Nets.

11. Clean off each court with a pressure washer and blower to remove all dirt and debris and acid wash the new concrete surface. All bird baths will be patched with TPS 5000® Rhinofill crack filler.

12. Apply one (1) coat of TPS 5000® Acrylic Surface at a rate of 0.7 gal/SY. Silica sand shall be mixed to achieve a medium to slow ball speed.

13. Apply two (2) coats of TPS 5000® Fortified Acrylic Color Coating.

14. Apply two (2) School Logos.

15. Layout and paint 2" wide lines using Line Tape Sealer as a primer coat to ensure razor sharp edges. Paint shall be TPS 5000® White Line Paint and painted in accordance to USTA specifications.

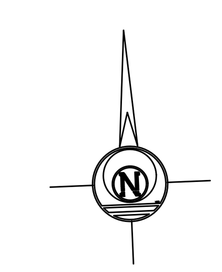
16. Lighting Package Alternate: New Musco Sports Lighting package at Two (2) new tennis courts and two existing tennis courts.

17. Lighting Package Alternate: Retrofit Existing Tennis Courts with Musco Lighting

18. Project cleanup and restoration of disturbed area.

KEYED NOTES:

A	NEW TENNIS COURTS WITH COMPLETE SINGLES AND DOUBLES TENNIS MARKINGS AND NETTING.
B	3,392 SQ. FT. OF NEW ACCESSIBLE CONCRETE SIDEWALK AND FLATWORK.
C	NEW LIGHT POLE ASSEMBLY.



LEGEND

- EXISTING BUILDING
- EXISTING CONCRETE
- CONCRETE SIDEWALK
- BLUE COLOR COATING
- GREEN COLOR COATING

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F-7608 MAR. 3, 2026

SAN ANGELO ISD

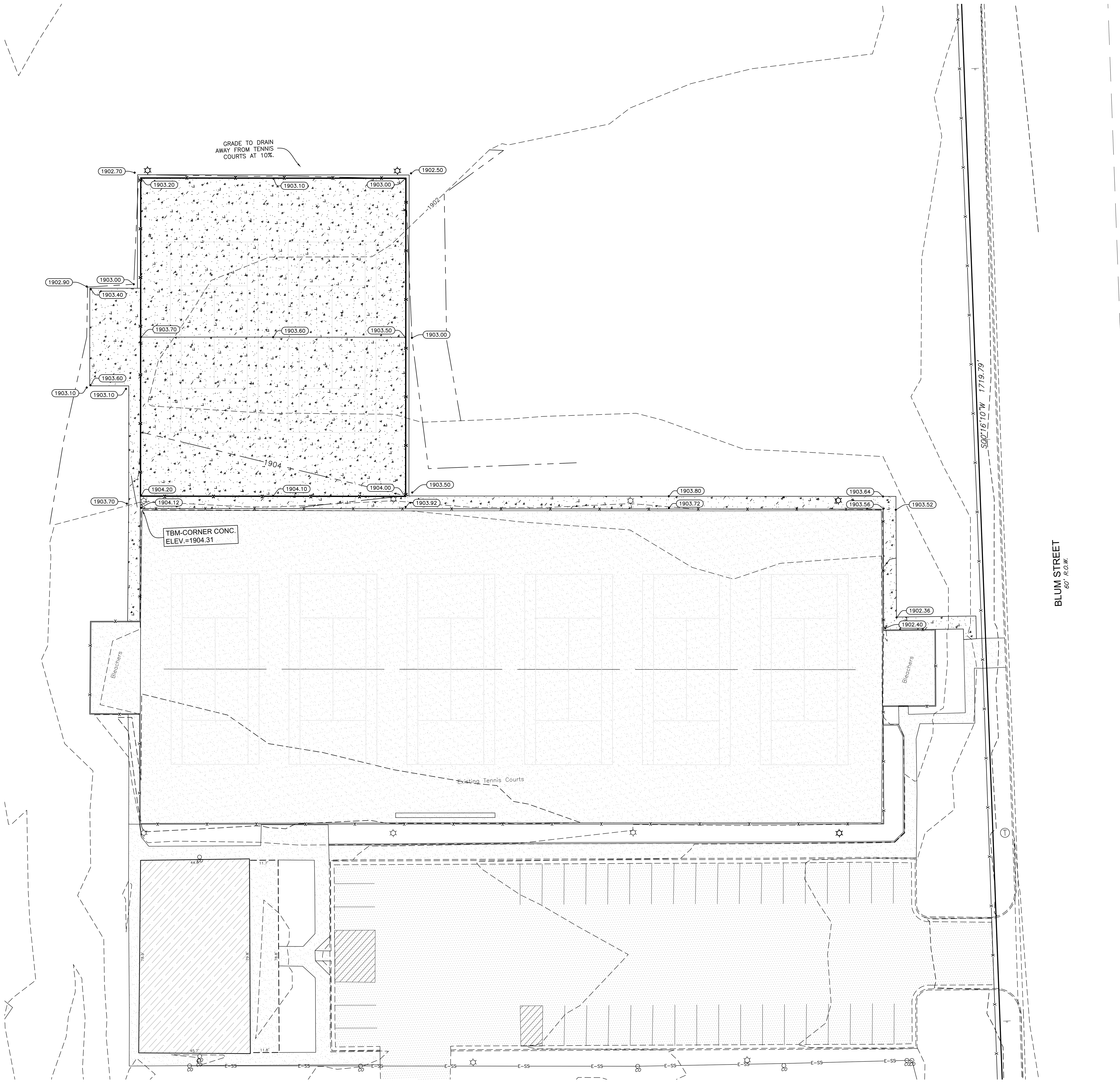
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
LAKE VIEW HIGH SCHOOL
TENNIS COURTS

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. H-C1.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg



LEGEND

— — — — —	EXISTING CONTOUR
——— — — ———	PROPOSED CONTOUR
(1904.60)	PROPOSED SPOT ELEVATION

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F-7608 MAR. 3, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

GRADING PLAN
LAKE VIEW HIGH SCHOOL
TENNIS COURTS

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. H-C2.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-E To H_LAKEVIEW.dwg

FOUNDATION PLAN NOTES:

1. CONTRACTOR SHALL COORDINATE WITH CIVIL PLANS FOR DIMENSIONS AND SITE GRADING. DO NOT SCALE THIS DRAWING FOR ESTABLISHING DIMENSIONS.
2. COORDINATE WITH THE SITE PLAN, GRADING PLAN, SITE CONDITIONS, OWNER'S AND ENGINEER'S REQUIREMENTS TO ENSURE THAT THE EXPOSED PORTIONS OF THE FOUNDATION AND ALL ASSOCIATED ELEMENTS ARE PROPERLY FORMED AND FINISHED IN A MANNER THAT ACCOUNTS FOR THE FINISHED GRADES ADJACENT THERETO, SUCH THAT NO EARTH FORMED PORTION OF THE FOUNDATION IS REVEALED (OR WITHIN 4" OF BEING REVEALED).
3. CONTRACTOR SHALL LAYOUT THE PERIMETER OF THE TENNIS COURTS IN COORDINATION WITH UTILIZING THE CIVIL PLANS. DO NOT SCALE THIS DRAWING TO ESTABLISH DIMENSIONS NOT SHOWN HEREON.
4. VERIFY DIMENSIONS, SLOPES, AND FLOOR DEPRESSIONS WITH CIVIL PLANS.
5. **REFER TO GENERAL NOTES ON SHEET S2.1 AND PROJECT GEOTECHNICAL REPORT FOR (SKG PROJ. NUMBER 25-E-1742) FOR SUBGRADE, FILL, AND BASE MATERIAL PREPARATION.**
6. **THE FINAL SURFACE MUST HAVE A MEDIUM BROOM FINISH.**
7. **THE FINISHED SLAB MUST NOT VARY MORE THAN 1/8 INCH IN 10 FEET WHEN MEASURED IN ANY DIRECTION.**
8. **THE SLAB SHALL BE MOISTURE CURED W/ MOISTENED BURLAP, A POLYETHYLENE SHEET OR OTHER CURING PAPER FOR A MINIMUM OF 7 DAYS AFTER CONCRETE PLACEMENT.**
9. **DO NOT USE A CHEMICAL CURING COMPOUND AS THIS CAN INTERFERE WITH THE BOND OF THE ACRYLIC COATING.**
10. **IF THE CONCRETE IS NOT FINISHED WITH A MEDIUM BROOM TEXTURE, IT MUST BE MECHANICALLY PREPARED (E.G., SHOT-BLASTED) TO A CSP 3 OR CSP 4 PROFILE.**
11. **THE SURFACE MUST BE CLEANED OF ALL GREASE, OIL, DUST, AND DIRT, FOLLOWED BY AN ACID ETCH (PHOSPHORIC OR MURIATIC ACID) AND A THOROUGH RINSING.**
12. **ANY "BIRDBATHS (STANDING WATER) DEEPER THAN 1/16" MUST BE PATCHED AND LEVELED BEFORE APPLYING THE COLOR.**
13. **SPORTS COURT SURFACING/PAINTING SHALL NOT BE PLACED PRIOR TO A MINIMUM OF 28 DAYS AFTER CONCRETE PLACEMENT.**

STRESSING RECORDING:

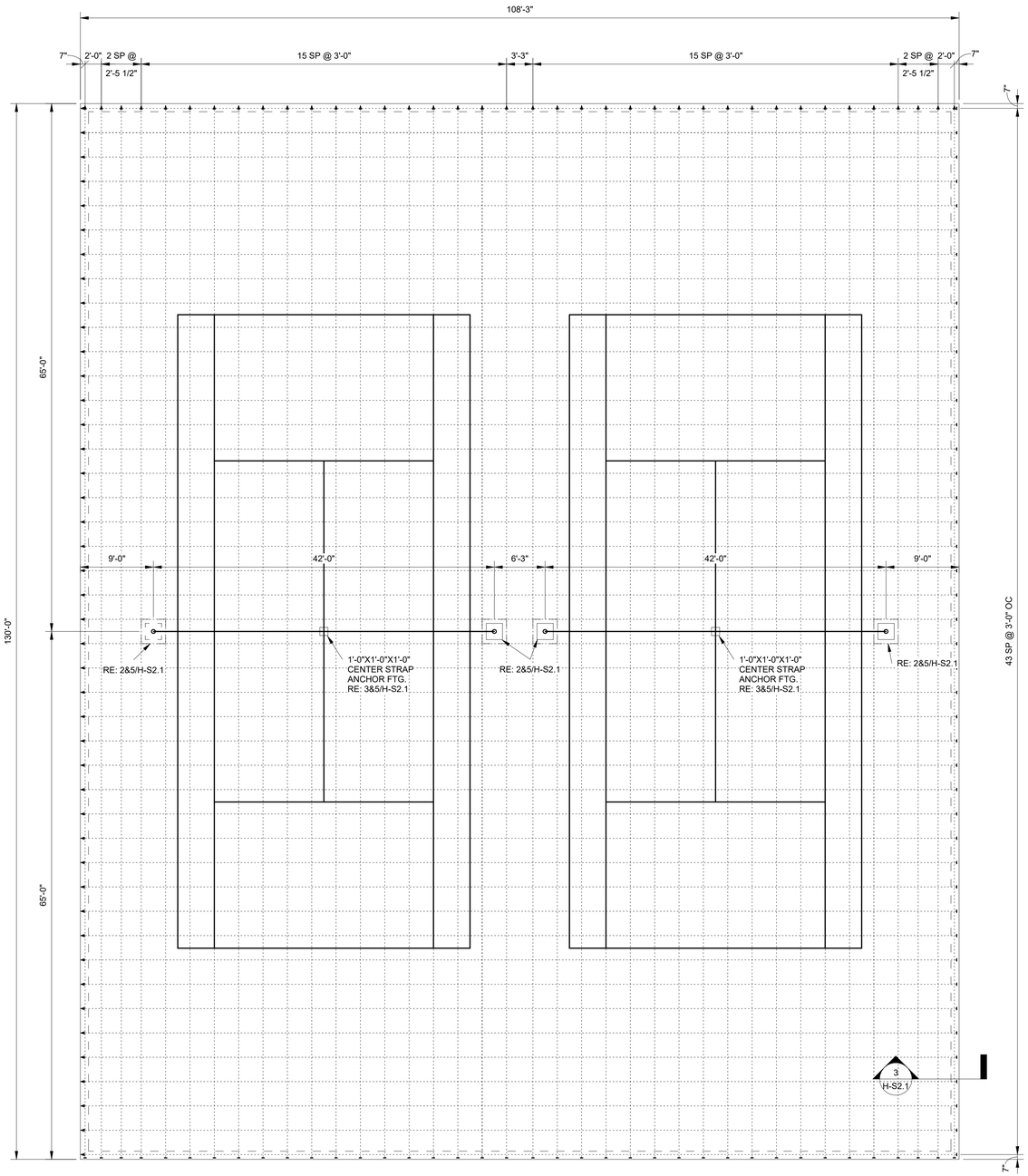
THE STRESSING RECORD FORM SUPPLIED BY THE PT SUPPLIER OR THE INSPECTION COMPANY SHOULD BE USED TO RECORD THE MEASURED ELONGATIONS.

THE STRESSING RECORD SHOULD CONTAIN THE FOLLOWING INFORMATION.

- PROJECT IDENTIFICATION
  - NAME OF THE PROJECT OWNER OR CONTRACTOR
  - NAME OF THE PROJECT
  - PT CONCRETE COURT SLAB IDENTIFICATION (THAT IS, THE BATTERY NUMBER OR DESIGNATION)
- DATE OF STRESSING
- EQUIPMENT IDENTIFICATION
  - SERIAL NUMBER OR OTHER IDENTIFYING NUMBER OF THE STRESSING JACK AND GAUGE
  - REQUIRED GAUGE READING CORRESPONDING TO THE JACKING FORCE REQUIRED FOR THE TENDON SIZE PROVIDED IN ACCORDANCE WITH THE CALIBRATION CHART SUPPLIED BY THE PT SUPPLIER
  - RECORD-MARKING DEVICE TYPE AND LENGTH
- NAME OF THE STRESSING EQUIPMENT OPERATOR(S)
- TENDON IDENTIFICATION MARK OR OTHER TENDON IDENTIFICATION REFERENCE FROM THE LDP'S SLAB CONSTRUCTION DOCUMENTS AND CALCULATED ELONGATION
- CALCULATED ELONGATION
- MEASURED ELONGATION
- ANY SPECIAL DATA OR REMARKS RELATED TO THE STRESSING OPERATION

THE FOLLOWING STEPS SHOULD BE TAKEN TO RECORD ELONGATIONS:

- RECORD THIS MEASURED ELONGATION AND COMPARE IT WITH THE CALCULATED ELONGATION.
- IF THE MEASURED ELONGATION FALLS WITHIN THE ALLOWABLE VARIANCE, MOVE TO THE NEXT TENDON AND CONTINUE THE STRESSING OPERATION.
- IF THE MEASURED ELONGATIONS DO NOT FALL WITHIN THE ALLOWABLE VARIANCE, DISCONTINUE STRESSING UNTIL THE CAUSE HAS BEEN IDENTIFIED AND A SOLUTION RESOLVED.
- CHECK FOR POSSIBLE CAUSES OF IMPROPER ELONGATIONS AS OUTLINED IN SECTION 9.4. THE PT SUPPLIER MAY PROVIDE RECOMMENDATIONS FOR RESOLVING ELONGATIONS ISSUES.
- THE COMPLETED STRESSING RECORD SHOULD BE FORWARDED TO THE CONTRACTOR AND LDP OR THEIR DESIGNATED REPRESENTATIVE RETAINED AS PART OF THE PERMANENT RECORDS FOR THE PROJECT.



1 FOUNDATION PLAN
1/8" = 1'-0"

SKG ENGINEERING LLC
SURVEYING • ENVIRONMENTAL • LABICMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

TERRY F. WHITE 110408 LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY TERRY F. WHITE, P.E. 110408 ON ENGINEERING FIRM # F-7608

03/02/2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

LAKE VIEW TENNIS COURTS - FOUNDATION PLAN

REVISIONS

#	Date	Description

DWG BY: JW	DWG. DATE: 03/02/2026
JOB NO.: 25-E-1488	SHEET NO.: H-S1.1
SCALE: As indicated	

N

N:\Engineering\2025\25E1488 SAISD Athletic Projects\LV TENNIS COURTS FOUNDATION DESIGN\LV TENNIS COURTS FOUNDATION DESIGN.rvt

GENERAL NOTES:

A. GENERAL

1. DO NOT SCALE DRAWINGS FOR THE PURPOSE OF ESTABLISHING DIMENSIONS.
2. VERIFY EXISTING CONDITIONS AND DIMENSIONS WITH OWNER PRIOR TO BEGINNING WORK.
3. REFERENCE CIVIL, STRUCTURAL, AND MECHANICAL PLANS FOR VERIFICATION OF ALL BOLTS, BLOCKING, ANCHORS, ETC., AND THE ANCHORAGE OF THEIR RESPECTIVE ITEMS.
4. COORDINATE WITH THE CIVIL, DRAWINGS AND VERIFY THE LOCATION OF ALL CHASES, INSERTS, OPENINGS, SLEEVES, FINISHES, DEPRESSIONS, PADS, WALL OPENINGS, AND OTHER PROJECT REQUIREMENTS.
5. CONCRETE TRUCKS, CRANES, FORKLIFTS OR ANY VEHICLE WITH A WHEEL LOAD GREATER THAN 2,000 POUNDS SHALL NOT BE PERMITTED ON THE SLAB WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.
6. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT WHEN PLACED ON FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGNED LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT OBTAINED DESIGN STRENGTH.
7. IF A CONFLICT ARISES, THE MORE PROHIBITIVE CONDITION SHALL TAKE PRECEDENCE AND BE CONSIDERED THE INTENT OF THE PROJECT DOCUMENTS. SKG ENGINEERING SHALL BE NOTIFIED IMMEDIATELY IF CONFLICTS ARE NOTED.
8. COORDINATE WITH THE SITE PLAN, GRADING PLAN, SITE CONDITIONS, OWNER'S, ENGINEER'S AND ARCHITECT'S REQUIREMENTS TO ENSURE THAT THE EXPOSED PORTIONS OF THE FOUNDATION AND ALL ASSOCIATED ELEMENTS ARE PROPERLY FORMED AND FINISHED IN A MANNER THAT ACCOUNTS FOR THE FINISHED GRADES ADJACENT THERETO, SUCH THAT NO EARTH FORMED PORTION OF THE FOUNDATION IS REVEALED (OR WITHIN 4" OF BEING REVEALED).

B. DESIGN CRITERIA AND BUILDING CODE

1. INTERNATIONAL BUILDING CODE, 2021, INCLUDING AMENDMENTS AND ADDITIONS.
2. FLOOR LIVE LOADS — UNIFORM LOADS
   ALL AREAS — 75 PSF

C. FOUNDATION AND SUB-GRADE PREPARATION

1. THE SUBGRADE INFORMATION AND FOUNDATION DESIGN ARE BASED UPON A GEOTECHNICAL INVESTIGATION CONDUCTED BY SKG ENGINEERING (SKG PROJECT NUMBER 25-E-1742)..
2. BELOW AND 3'-0" BEYOND THE FOUNDATION, INCLUDING ADJACENT FLATWORK, REMOVE AT A MINIMUM THE TOP 1'-0" OF EXISTING MATERIAL IN ADDITION REMOVE ANY LOOSE, ORGANIC, SPONGY, OR OTHERWISE UNSUITABLE MATERIALS BELOW AND DISPOSE OF IN A PROPER MANNER. THE EXPOSED SUBGRADE SHALL THEN BE PROOFROLLED UNTIL IT OFFERS A RELATIVELY UNYIELDING SURFACE. ANY SOFT OR PUMPING AREAS ARE TO BE EXCAVATED AND REPLACED WITH AN APPROVED FILL. SCARCIFY THE EXPOSED SUBGRADE TO A DEPTH OF EIGHT INCHES AND RE-COMPACT TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY WITHIN +/- 2 PERCENTAGE POINTS OF THE SOILS OPTIMUM MOISTURE CONTENT. ARRANGE FOR AN INDEPENDENT TESTING AGENCY TO VERIFY COMPACTION.
3. PROVIDE A MINIMUM OF 1'-0" OF COMPACTED BASE CONSISTING OF TYPE A, GRADE 2 OR BETTER, LIMESTONE MATERIAL BELOW AND 3'-0" BEYOND THE FOUNDATION, INCLUDING ADJACENT FLATOWRK, IN LIFTS NOT TO EXCEED EIGHT INCHES THICK. PROVIDE MORE COMPACTED BASE AS REQUIRED TO ACHIEVE FINAL DESIGN HEIGHT OF FINISHED PAD (REFERENCE CIVIL GRADING PLAN). UNIFORMLY COMPACT TO AT LEAST 97 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698 WITHIN +/- 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT. ARRANGE FOR AN INDEPENDENT TESTING AGENCY TO VERIFY COMPACTION.
4. PROVIDE A 2" LAYER OF CLEAN SAND ON TOP OF BASE LAYER. THE SAND LAYER SHALL BE PROVIDED BELOW PERIMETER THICKENED EDGES (PERIMETER FOOTINGS).
5. VERIFY COMPACTION AT A FREQUENCY OF A MINIMUM OF 3 TEST PER LIFT.
6. MAINTAIN THE SUBGRADE AND FILL MOISTURE CONTENT UNTIL FOUNDATIONS ARE PLACED TO THE GREATEST EXTENT POSSIBLE.
7. USE TEMPORARY CASING IF REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE HOLE, OR PREVENT INFLUX OF GROUND WATER.
8. DO NOT PLACE FOOTINGS OR SLABS AGAINST A SUBGRADE CONTAINING FREE WATER, FROST, OR ICE.
9. WHERE EXISTING SLOPES EXCEED TEN HORIZONTAL TO ONE VERTICAL, THE CROSS SLOPE SHOULD BE BENCHED TO PROVIDE A MINIMUM OF 6'-0" BENCH WIDTH.
10. COURT PAD SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6 INCHES WITHIN THE FIRST 10 FEET.
11. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS A MINIMUM OF 4 INCHES WHERE MASONRY VENEER IS USED AND A MINIMUM OF 6 INCHES ELSEWHERE.

D. CAST - IN - PLACE CONCRETE

1. WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 318, CURRENT VERSION, PUBLISHED BY THE AMERICAN CONCRETE INSTITUTE, DETROIT, MICHIGAN, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THESE CONTRACT DOCUMENTS.
2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE, UNIT WEIGHT APPROXIMATELY 145 PCF.
3. SLABS ON GRADE SHALL HAVE CONSTRUCTION JOINTS AND CONTROL JOINTS AS SHOWN ON THE DRAWINGS. OBTAIN WRITTEN APPROVAL FROM ENGINEER IF REQUESTING ADDITIONAL CONSTRUCTION JOINTS.
4. CLEAN ALL CONSTRUCTION JOINTS THOROUGHLY AND PURPOSELY ROUGHEN THE SURFACE TO 1/4" AMPLITUDE PRIOR TO PLACING ADJACENT CONCRETE.
5. APPLY A GRAY COLOR, HORIZONTAL JOINT SEALANT IN ALL CONSTRUCTION AND SAWN JOINTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. PLACEMENT OF SLEEVES AND OPENINGS THROUGH BEAMS, COLUMNS, OR JOISTS IS NOT PERMITTED UNLESS INDICATED ON STRUCTURAL DRAWINGS OR APPROVED, IN WRITING, BY ENGINEER. OPENINGS 12" SQUARE OR SMALLER MAY BE PLACED WITHOUT WRITTEN APPROVAL.
7. CAREFULLY COORDINATE THE PLACEMENT OF ALL CAST-IN-PLACE EMBEDS AND ANCHOR BOLTS. ANCHOR BOLTS SHALL BE SET WITH A TEMPLATE. ALL EMBED ITEMS SHALL BE SECURELY ATTACHED TO FORMWORK OR REINFORCING.
8. CONCRETE MIX DESIGNS SHALL CONFORM TO THE FOLLOWING:
   A. SLAB ON GRADE, GRADE BEAMS, PIERS AND PILASTERS.
      a. 1-1/2 INCH MAXIMUM COARSE AGGREGATE;
      b. MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI;
      c. MAXIMUM WATER-TO-CEMENTITIOUS MATERIAL RATIO OF 0.53;
      d. SLUMP BETWEEN 4 AND 6 INCHES;
      e. AIR CONTENT SHALL BE 2% TO 4% FOR EXTERIOR CONCRETE;
      f. USE OF FLY-ASH AND/OR GROUND-GRANULATED-BLAST-FURNACE-SLAG IS LIMITED TO 20% SUBSTITUTION BE WEIGHT OF CEMENT.
9. ALL EXPOSED CONCRETE SURFACES SHALL HAVE A TOOLED FINISH UNLESS NOTED ELSEWHERE IN THE PLANS OR CONSTRUCTION DOCUMENTS.
10. ADDITION OF WATER TO BATCHED CONCRETE AT THE JOB SITE IS LIMITED TO THE CASE WHEN THE WORKABILITY OF DELIVERED CONCRETE IS INSUFFICIENT FOR PRACTICAL PLACEMENT AND ALL OF THE WATER ALLOWED BY THE MIX DESIGN HAS NOT BEEN ADDED AT THE START OF MIXING. IN NO CASE SHALL THE SPECIFIED WATER-TO-CEMENTITIOUS MATERIAL RATIO OR SLUMP BE EXCEEDED. UNDER NO CIRCUMSTANCES SHALL WATER BE ADDED TO THE CONCRETE MIXTURE AFTER PART OF THE BATCH HAS BEEN DISCHARGED.
11. PIPES AND CONDUITS EMBEDDED IN CONCRETE SLABS SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAT 1/3 OF THE OVERALL THICKNESS OF THE SLAB. PIPING WITHIN THE SLAB SHALL NOT BE PLACED CLOSER THAN 3 DIAMETERS ON CENTER.
12. FOR BARE CONCRETE FLOORS THAT DO NOT RECEIVE PAINT, STAIN, OR ANY OTHER COATING, A SPRAY-ON CONCRETE CURING COMPOUND SHALL BE APPLIED TO HELP REDUCE THE RATE OF MIX-WATER EVAPORATION NEAR THE SURFACE. APPLICATION SHALL TAKE PLACE AS SOON AS THE FREE WATER ON THE SURFACE HAS EVAPORATED AND ACCORDING TO MANUFACTURER SPECIFICATIONS.

E. CONCRETE CONTROL TESTS

1. MAKE TEST CYLINDERS FROM CONCRETE MIXED AND AT THE DIRECTION OF ARCHITECT/ENGINEER. A MINIMUM OF THREE (3) TEST CYLINDERS SHALL BE MADE FOR EACH POUR.
2. TEST SPECIMEN: SHALL BE TAKEN AND TESTED BY AN APPROVED TESTING LABORATORY, IN ACCORDANCE WITH ASTM SPECIFICATIONS FOR COMPRESSION TEST OF CONCRETE. CRUSH ONE (1) TEST CYLINDER AT SEVEN DAYS AND (2) AT TWENTY-EIGHT DAYS. CONCRETE TESTED WHICH FALLS BELOW THE STRENGTH SPECIFIED SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF THE CONTRACTOR.
3. MAKE SLUMP TEST FOR EACH OF THE CYLINDERS
   SLUMP: DETERMINED WITH A STANDARD SLUMP CONE IN ACCORDANCE WITH ASTM RECOMMENDATIONS BY AN APPROVED TESTING COMPANY.
4. LABORATORY REPORTS SHALL INCLUDE:
   A. DATE OF POUR.
   B. LOCATION OF POUR, SO THAT IDENTIFIED ON PLANS
   C. BY WHOM CYLINDERS TAKEN, INCLUDING NAME OF INDIVIDUAL
   D. SLUMP
   E. TEMPERATURE
   F. RESULTS OF COMPRESSION TEST
5. DISTRIBUTION OF TEST RESULTS: ONE COPY TO STRUCTURAL ENGINEER AND ONE COPY TO BUILDER. TEST RESULTS WHICH DO NOT INCLUDE THE ABOVE INFORMATION ARE NOT ACCEPTABLE. UNLESS ACCOMPANIED BY LETTER EXPLAINING REASONS FOR NON-COMPLIANCE.

F. REINFORCING STEEL

1. PROVIDE NEW BILLET STEEL REINFORCING CONFORMING TO ASTM A615, GRADE 60.
2. PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A185. LAP LENGTH FOR WELDED WIDE IS 12" MINIMUM
3. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318-99 AS FOLLOWS:

A.	CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3 in.
B.	EXPOSED TO EARTH OR WEATHER, # 6 BAR AND LARGER:	2 in.
C.	EXPOSED TO EARTH OR WEATHER, #5 BAR AND SMALLER:	1 1/2 in.
D.	SLABS, WALLS, JOISTS NOT EXPOSED TO EARTH OR WEATHER:	3/4 in.
E.	BEAMS, COLUMNS NOT EXPOSED TO EARTH OR WEATHER:	1 1/2 in.

4. ALL REINFORCING SHALL BE CONTINUOUS UNLESS NOTED OTHERWISE. PROVIDE CLASS "B" REINFORCING SPLICES. PROVIDE STANDARD 90 DEGREE HOOKS IN ACCORDANCE WITH ACI 318-99, UNLESS NOTED OTHERWISE. STAGGER SPLICES UNLESS SPECIFICALLY NOTED.
5. WHERE REQUIRED, PROVIDE DOWELS MATCHING SIZE AND SPACING OF MAIN REINFORCEMENT.
6. ALL REINFORCING SHALL BE PLACED USING APPROPRIATE CHAIRS PROVIDING THE MINIMUM REQUIRED CLEARANCE FROM THE GROUND. NO REINFORCING SHALL BE DRIVEN INTO THE EARTH THAT WILL RESULT IN MOISTURE FROM THE SOIL COMING IN CONTACT WITH THE REINFORCING.
7. REINFORCING LEGEND:

   #4 (1-6/2-0) @ 18
   | | — SPACING IN INCHES
   | — BENT BAR LENGTH FROM BEND TO END OF BAR IN FEET AND INCHES
   | — BAR SIZE

   #4 (3-0) @ 18
   | | — SPACING IN INCHES
   | — BENT BAR LENGTH FROM BEND TO END OF BAR IN FEET AND INCHES
   | — BAR SIZE

G. VAPOR BARRIER

1. VAPOR BARRIER SHALL BE 15 MIL CLASS A BY STEGO WRAP, W.R. MEADOWS OR EQUAL. SEAMS SHALL BE LAPPED A MINIMUM OF 1" AND SEALED WITH MANUFACTURER SUPPLIED TAPE. ANY HOLES IN VAPOR BARRIER SHALL BE SEALED WITH MANUFACTURER'S SUPPLIED TAPE.
2. VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THICKENED EDGES.

H. INSPECTIONS

1. PLEASE CONTACT SKG ENGINEERING TO PERFORM A TENDON INSPECTION A MINIMUM OF 48 HOURS PRIOR TO PLACING CONCRETE. IF SKG ENGINEERING IS NOT ALLOWED TO PERFORM A PRE-POUR INSPECTION, ENGINEERING IS VOID.
2. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE CITY OF SAN ANGELO PERMITTING AND INSPECTIONS DEPARTMENT FOR ALL INSPECTIONS REQUIRED BY THAT ENTITY.

I. POST TENSIONING CABLES

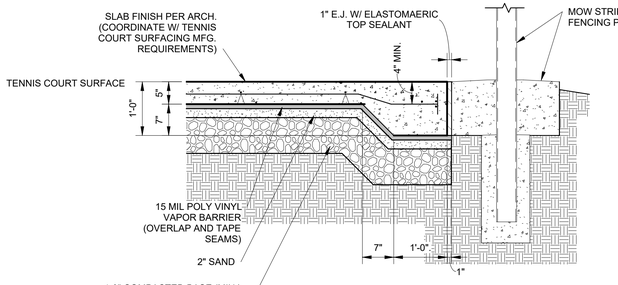
1. ALL POST TENSIONING MATERIALS AND ANCHORAGES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 416 AND THE POST TENSIONING INSTITUTE'S SPECIFICATIONS FOR UNBONDED SINGLE STRAND TENDONS, 1993 REVISION.
2. ALL POST TENSIONING CABLES SHALL BE FABRICATED FROM 7 WIRE 1/2" ∅, 270 KSI MATERIAL CONFORMING TO ASTM A416. THE TENDONS SHALL INCLUDE A CORROSION INHIBITOR AND BE ENCASED IN A PLASTIC SHEATH FOR PROTECTION.
3. DETERMINATION OF THE TENDON LENGTHS IS THE RESPONSIBILITY OF THE CONTRACTOR OR CABLE SUPPLIER.
4. PARTIAL STRESSIN TO 30% OF THE FULL STRESS WITHIN 18 TO 36 HOURS OF CONCRETE PLACEMENT IS RECOMMENDED TO MINIMIZE SHRINKAGE CRACKS.
4. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT THE TIME OF FULL STRESSING OPERATIONS.
5. SUPPORTS FOR REINFORCING BARS OR TENDONS SHALL NOT PENETRATE THE MOISTURE BARRIER DURING PLACEMENT OR CONCRETE PLACEMENT.
6. TENDON SUPPORTS FOR 1/2" ∅ STRANDS SHALL BE PLACED NOT MORE THAN 4'-6" ON CENTER IN BOTH DIRECTIONS.
7. ALL JACKS USED TO STRESS TENDONS SHALL BE ACCOMPANIED BY CALIBRATION SHEETS CORRELATING HYDRAULIC PRESSURE TO TENDON FORCE.
8. EACH TENDON ELONGATION SHALL BE MEASURED AND COMPARED TO THE SPECIFIED ELONGATION ON SHOP DRAWINGS. NOTIFY THE ENGINEER IF THE MEASURED ELONGATION VARIES MORE THAN 10% FROM THE SPECIFIED VALUES.
9. LOOPING OF TENDONS TO FORM DEAD END ANCHORAGES IS NOT RECOMMENDED.

J. CONSTRUCTION NOTES

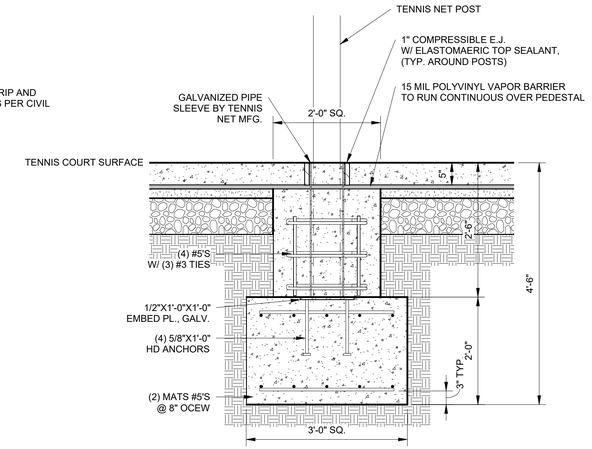
2. PROVIDE A MINIMUM 15 MIL POLYETHYLENE VAPOR BARRIER BENEATH THE ENTIRE SLAB.
3. PROVIDE A MINIMUM OF TWO INCHES CLEARANCE BETWEEN STRANDS AND EDGE OF CONCRETE AT ALL CORNERS, DROPS AND BLOCKOUTS. IT IS ALLOWABLE TO ADJUST THE SLAB STRAND LOCATIONS A MAXIMUM OF 12" HORIZONTALLY TO ACHIEVE PROPER CLEARANCE. USE CHAIRS AS NECESSARY TO ACHIEVE PROPER CLEARANCE.
4. DAMAGED STRAND SHEATHING MUST BE REPLACED TO PREVENT BONDING WITH CONCRETE.
5. DO NOT ALLOW SLAB STRANDS TO SAG SO THAT ANY PART OF ANY STRAND IS NOT WITHIN THE MIDDLE 1/3 OF THE SLAB THICKNESS.
6. CONSTRUCTION JOINTS ARE ONLY PERMITTED WHERE SHOWN ON PLAN.
7. ALL PLASTIC SUPPORT CHAIRS SHALL BE ATTACHED TO THE STRANDS WITH WIRE.
8. REBAR AND STRANDS SHALL NOT BE DISTURBED OR MOVED FROM ITS PROPER LOCATION DURING CONCRETE PLACEMENT.
9. CARE SHOULD BE TAKEN BY THE CONTRACTOR TO ENSURE THAT THE SOILS HAVE THE PROPER MOISTURE CONTENT BEFORE THE FOUNDATION IS POURED. EXCESSIVELY DRY OR WET SOILS WHEN THE FOUNDATION IS POURED CAN CONTRIBUTE TO EXCESSIVE FOUNDATION MOVEMENT WHEN MOISTURE IS REINTRODUCED OR REMOVED.
10. IT IS IMPORTANT TO ENSURE THAT THE LANDSCAPE/GRASS LAYOUT DOES NOT ALLOW FOR AN EXCESSIVE MOISTURE VARIATION AROUND THE PERIMETER OF THE FOUNDATION (E.G. DRY IN ONE AREA AND NORMALLY WATERED IN ANOTHER).
11. PONDIING OF WATER ADJACENT TO THE FOUNDATION SYSTEM SHALL NOT BE ALLOWED.

K. SUBMITTALS FOR REVIEW

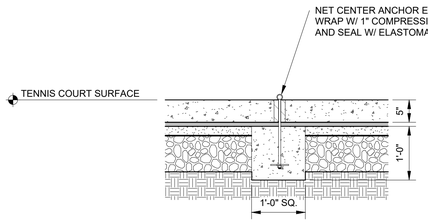
1. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SUBMITTALS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
   A. CONCRETE MIX DESIGNS
   B. TENDON SHOP DRAWINGS SHOWING TENDON LENGTHS, PLACEMENT, SPACING AND TENSIONING.



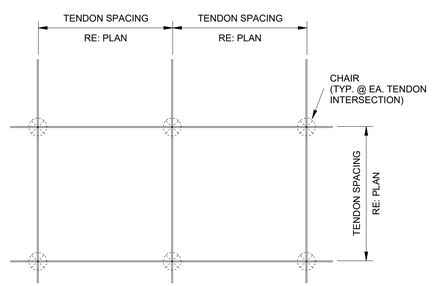
1 FOUNDATION PERIMETER SECTION
NO SCALE



2 NET POST FOOTING SECTION
NO SCALE

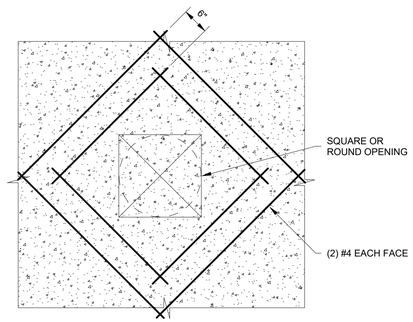


3 CENTER STRAP ANCHOR FOOTING SECTION
NO SCALE



NOTE:
VERTICAL DEVIATION OF TENDONS SHALL NOT RESULT IN THE TENDON BEING PLACED OUTSIDE OF THE MIDDLE THIRD OF THE SLAB, AND SHOULD BE LIMITED TO +/- 1/2".

4 TYPICAL CABLE SUPPORT LAYOUT
NO SCALE



5 BLOCK-OUT @ NET POSTS TYPICAL DETAIL
NO SCALE

SKG ENGINEERING LLC
SURVEYING • ENVIRONMENTAL • LABICMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
TROY P. WHITE
110408
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY TROY P. WHITE, P.E. 110408 ON ENGINEERING FIRM #F-7608

03/02/2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

LAKE VIEW TENNIS COURTS - FOUNDATION DETAILS

REVISIONS

#	Date	Description

DWG BY: JW	DWG. DATE: 03/02/2026
JOB NO. 25-E-1488	SHEET NO. H-S2.1
SCALE: As indicated	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\LV TENNIS COURTS FOUNDATION DESIGN\LV TENNIS COURTS FOUNDATION DESIGN.rvt

PULLIAM STREET

100 R.O.W.

Bleachers

SPAULDING STREET

100 R.O.W.

PROJECT SUMMARY:

1. Remove and dispose of existing synthetic turf.
2. Laser grade existing stone drainage material.
3. Provide and install a 2'X4' composite turf anchor system.
4. Provide and install Infilled Synthetic Turf system with layout/inlays for football and soccer per rendering.
5. Project cleanup and restoration of disturbed area.

KEYED NOTES:

[A] NEW ARTIFICIAL TURF FIELD WITH COMPLETE FOOTBALL AND SOCCER MARKINGS AND "SA" LOGO.

[B] NEW NETTING SYSTEM BEHIND GOAL POSTS ALONG EXISTING FENCE LINE. 40' TALL AND 60' LONG WITH A MINIMUM OF THREE STEEL PIPE POST.

LEGEND

DARK COLOR TURF

LIGHT COLOR TURF

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F-7608 MAR. 3, 2026

SAN ANGELO ISD

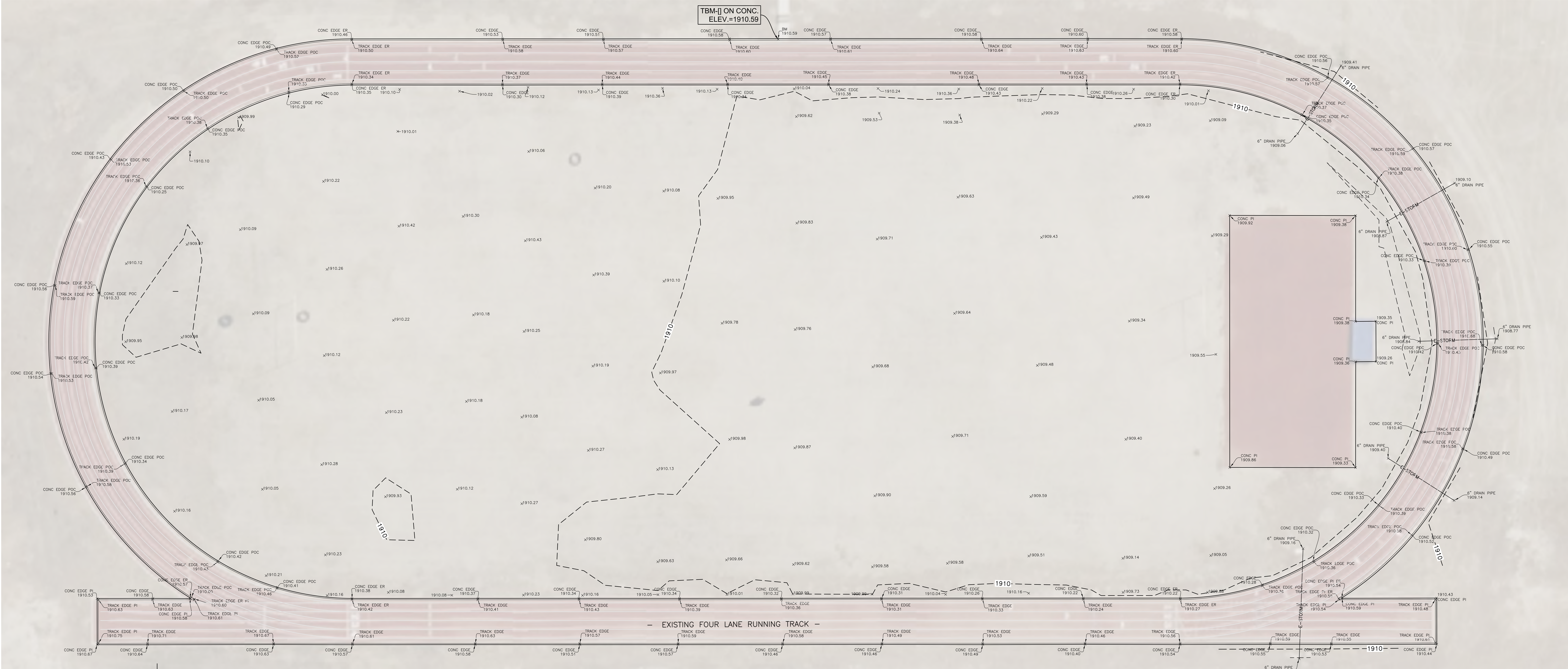
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
OLD BOBCAT STADIUM
902 SPAULDING STREET

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. I-C1.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-I_OLD BOBCAT.dwg



FOOTBALL FIELD



TENNIS COURTS

LEGEND

× 1909.80	SPOT ELEVATION
— — —1910— — —	CONTOUR LINE
——E–STORM——	STORM SEWER LINE

UTILITY LOCATIONS
The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

MAP SHOWING A TOPOGRAPHIC SURVEY OF A PORTION OF LINCOLN MIDDLE SCHOOL, 255 LAKE VIEW HEROES DRIVE, CITY OF SAN ANGELO, TOM GREEN COUNTY, TEXAS.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
706 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727 SKG ENGINEERING, LLC #F–7608 MAR. 2, 2026

SAN ANGELO ISD

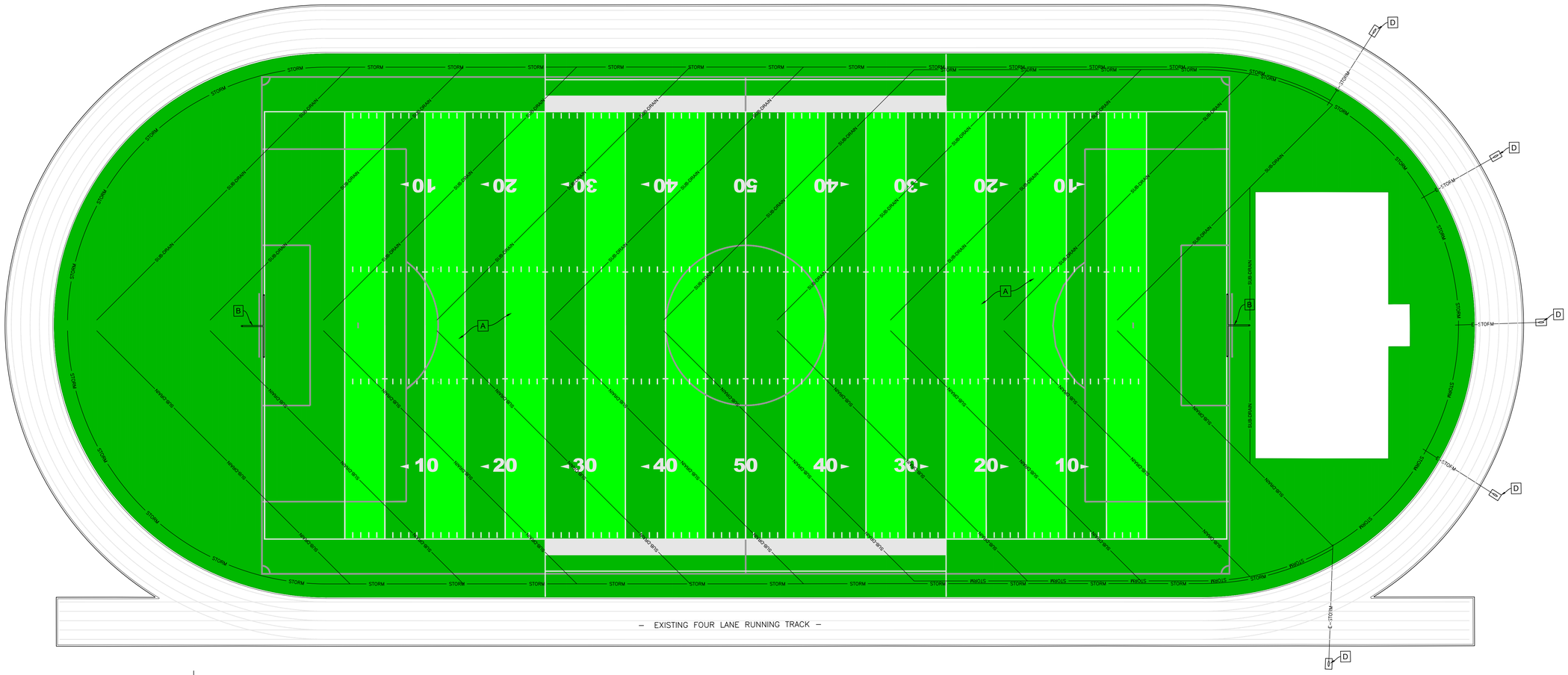
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LINCOLN MIDDLE SCHOOL
255 LAKE VIEW HEROES DR.

REVISIONS

DWG BY: DLH	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. J-C0.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-J_LINCOLN.dwg



FOOTBALL FIELD

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

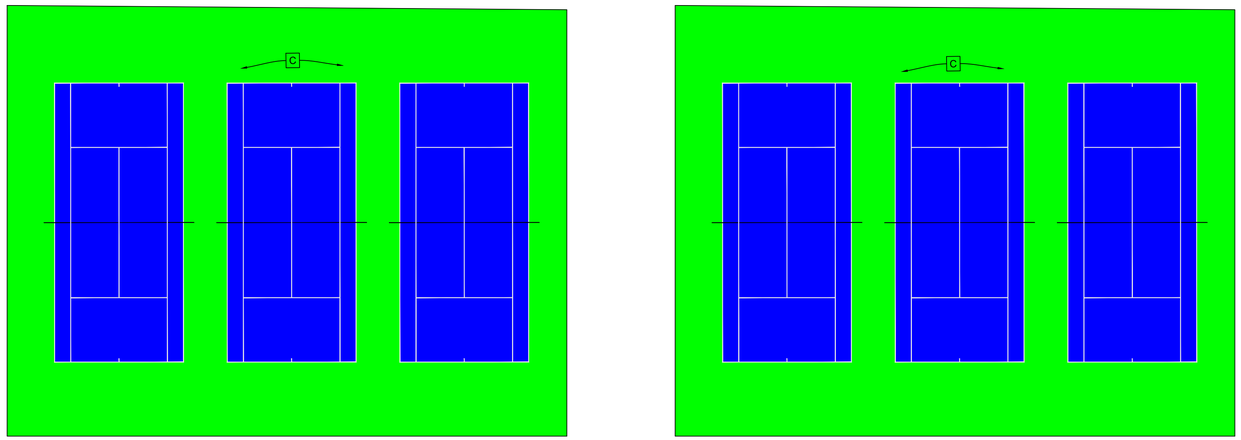
3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

BLUE COLOR COATING

GREEN COLOR COATING



TENNIS COURTS

PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

3. Moisture condition and compact top eight inches of subgrade to a minimum 95% Standard Proctor Density.

4. Machine control or laser grade subgrade to design subgrade elevations.

5. Provide and install 30 mil HDPE liner across turf area and perimeter collector drain trench.

6. Provide and install perforated HDPE drainage piping per plan.

7. Provide and install flat panel drains at 30' O.C. per plan; flat drains to terminate in perimeter collector line.

8. Provide and install 5" (minimum thickness) drain stone mix; compact to proper density and lazer grade to design elevations in all areas to receive synthetic turf.

9. Provide and install one set of Goal post with padding, 8' offset, and 30' uprights.

10. Provide and install a 2"X4" composite turf anchor system.

11. Provide and install Infilled Synthetic Turf system with layout/inlays for football and soccer per rendering.

12. Prepare each court with a pressure washer and blower to remove all dirt and debris and acid wash the concrete surface. All bird baths will be patched with TPS 5000® Rhinofill crack filler.

13. Apply one (1) coat of TPS 5000® Acrylic Surface at a rate of 0.7 gal/SY. Silica sand shall be mixed to achieve a medium to slow ball speed.

14. Apply two (2) coats of TPS 5000® Fortified Acrylic Color Coating.

15. Layout and paint 2" wide lines using Line Tape Sealer as a primer coat to ensure razor sharp edges. Paint shall be TPS 5000® White Line Paint and painted in accordance to USTA specifications.

16. Project cleanup and restoration of disturbed area.

KEYED NOTES:

A	NEW ARTIFICIAL TURF FIELD WITH COMPLETE FOOTBALL AND SOCCER MARKINGS.
B	NEW GOAL POST WITH FOUNDATION.
C	NEW SURFACE COATING ON TENNIS COURTS WITH COMPLETE SINGLES AND DOUBLES TENNIS MARKINGS AND NEW NETTING.
D	NEW CONCRETE END TREATMENT AROUND END OF EXISTING PIPE OUTLETS.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC. #F-7608
MAR. 2, 2026

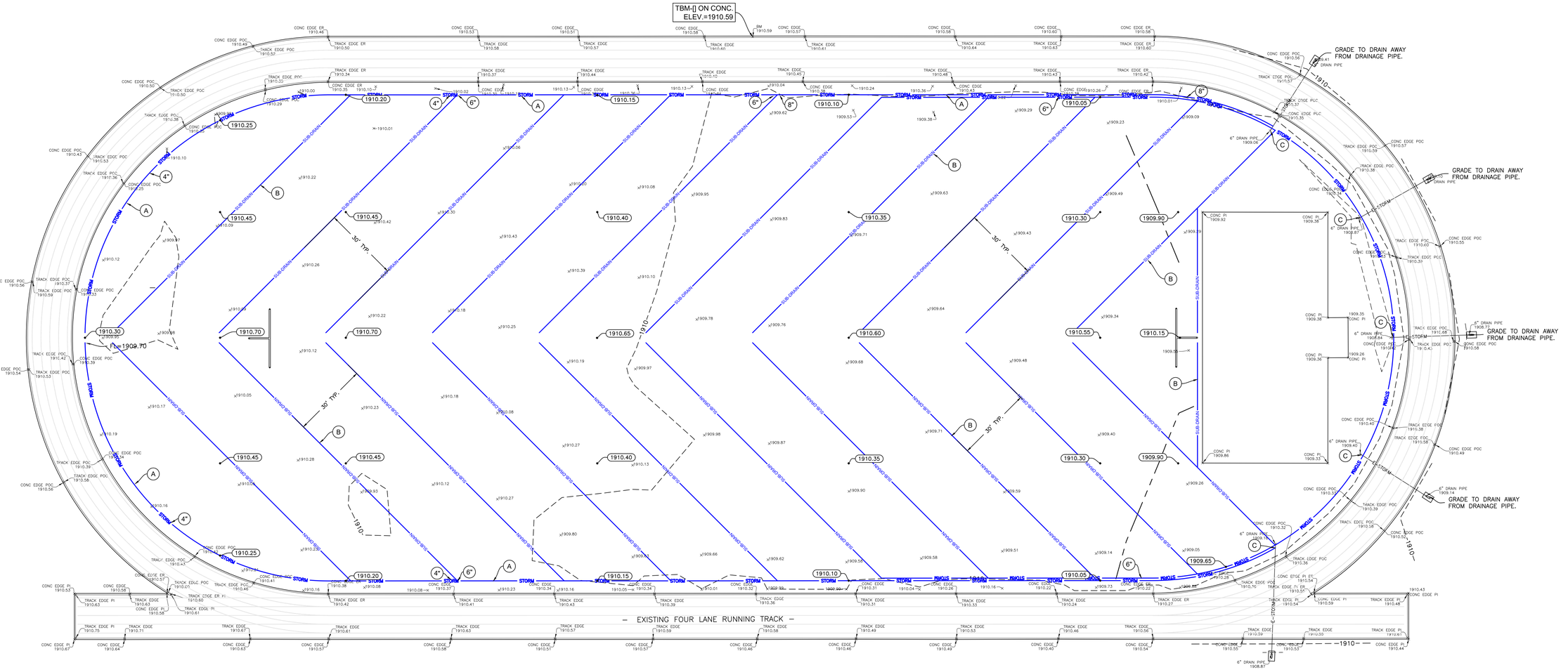
SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

SITE PLAN
LINCOLN MIDDLE SCHOOL
255 LAKE VIEW HEROES DR.

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. J-C1.1
SCALE: 1"=20'	



GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

KEYED NOTES:

(A) PERFORATED STORM DRAIN LINE @ 0.1% MIN. SLOPE TO CONNECTION AT EXISTING STORM DRAIN LINE. SIZE AS INDICATED ON PLAN.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) CONNECT TO EXISTING STORM DRAIN LINE.

LEGEND

x1910.20	EXISTING SPOT ELEVATION
	EXISTING CONTOUR
	PROPOSED CONTOUR
1911.40	PROPOSED SPOT ELEVATION
E-STORM	EXISTING STORMSEWER
STORM	PROPOSED STORMSEWER
SUB-DRAIN	PROPOSED FLAT PANEL DRAIN

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
PHONE: 325.655.1285
FAX: 325.657.8189
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

GRADING PLAN
LINCOLN MIDDLE SCHOOL
255 LAKE VIEW HEROES DR.

REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. J-C2.1
SCALE 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-J_LINCOLN.dwg

GUADALUPE STREET
60' R.O.W.

– EXISTING FOUR LANE RUNNING TRACK –

– EXISTING FOUR LANE RUNNING TRACK –

CAMPUS BOULEVARD
60' R.O.W.

TBM-[] ON CONC.
ELEV.=1910.81
BM SQ. ON CONC.
1910.81

LEGEND

- PROPERTY LINE
- x 1910.04 SPOT ELEVATION
- 1910 CONTOUR LINE
- CONCRETE
- FENCE
- E-SS SEWER LINE
- E-STORM STORM SEWER LINE

UTILITY LOCATIONS

The underground utilities shown hereon have been located from available field survey information, existing drawings, and from information obtained from third parties. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned and makes no guarantee that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LABS/CMT
705 SOUTH ABE STREET PHONE: 325.655.1285
SAN ANGELO, TEXAS 76903 FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

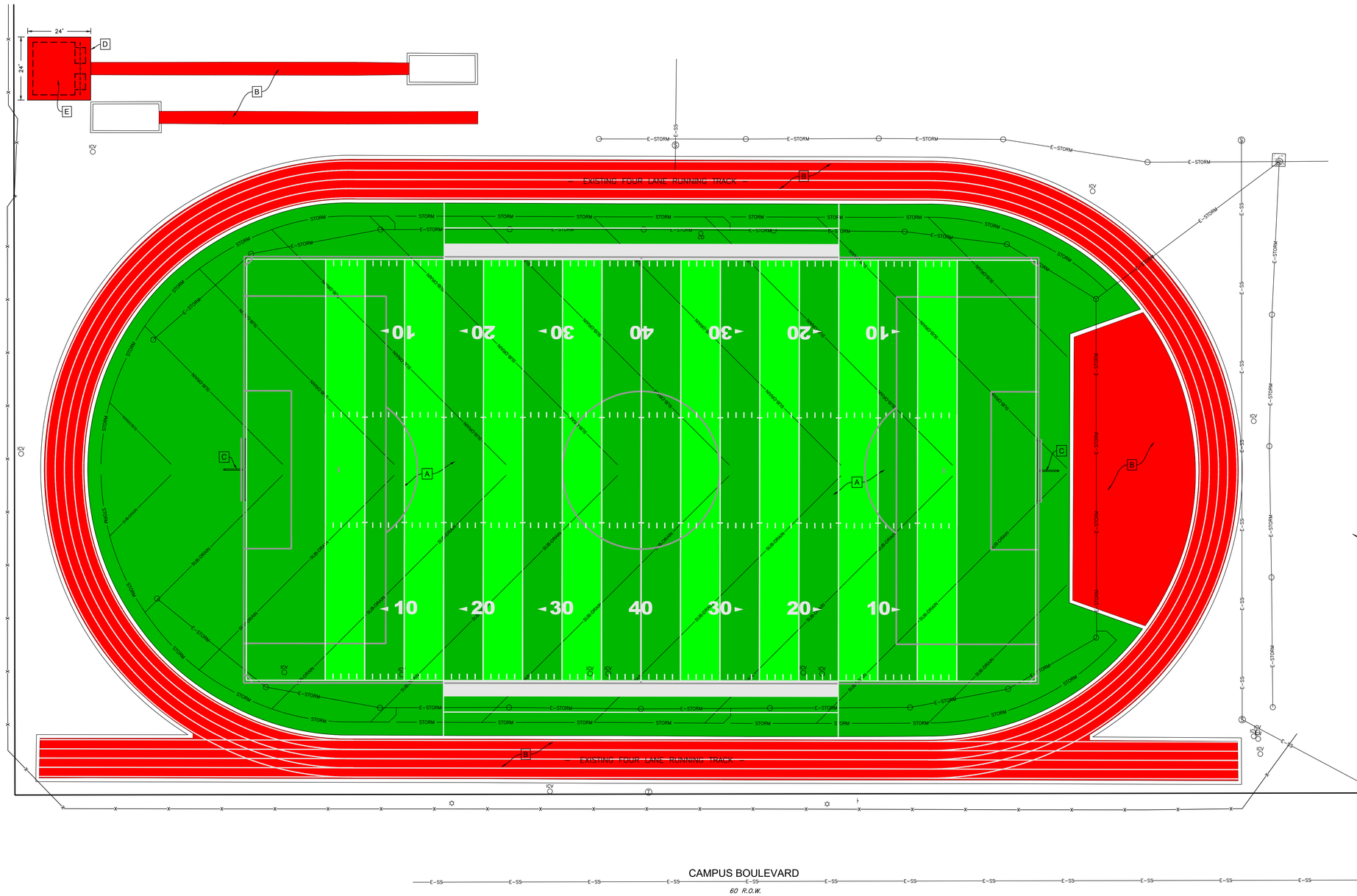
SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

TOPOGRAPHIC SURVEY
LONE STAR MIDDLE SCHOOL
2500 SHERWOOD WAY

REVISIONS

DWG BY:	DWG. DATE:
DLH	MAR. 3, 2026
JOB NO.	SHEET NO.
25-E-1488	K-C0.1
SCALE:	
1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-K_TEXANS.dwg



PROJECT SUMMARY:

1. Provide and install erosion control measures as necessary.

2. Remove existing track surfacing system from track oval and events and dispose offsite; Repair asphalt pavement cracks and surface undulations prior to commencement of surfacing operations.

3. Within the area of new Synthetic Turf coordinate with Owner to locate and cap irrigation laterals. Remove existing irrigation valves and heads and deliver to owner. Remove existing sod/soil for new cross sections and dispose of materials offsite.

4. Moisture condition and compact top eight inches of subgrade.

5. Machine control or laser grade subgrade to design subgrade elevations.

6. Provide and install 30 mil HDPE liner across turf area and perimeter collector drain trench.

7. Provide and install perforated HDPE drainage piping per plan.

8. Provide and install flat panel drains at 30' O.C. per plan; flat drains to terminate in perimeter collector line.

9. Provide and install 5"(minimum thickness) drain stone mix; compact to proper density and lazer grade to design elevations in all areas to receive synthetic turf.

10. Provide and install one set of Goal post with padding, 8' offset, and 30' uprights.

11. Provide and install a 2'X4' composite turf anchor system.

12. Provide and install Infilled Synthetic Turf system with layout/inlays for football and soccer per rendering.

13. Provide and install 13mm permeable paved mat and structural spray polyurethane surfacing system on the track oval, and events.

14. Stripe track per SAISD requirements. No logos required.

15. Provide and install concrete slab, track surface, vault base for pole vault, and complete pole vault pit package.

16. Project cleanup and restoration of disturbed area.

KEYED NOTES:

- [A] NEW ARTIFICIAL TURF FIELD WITH COMPLETE FOOTBALL AND SOCCER MARKINGS.
- [B] NEW 13mm PERMEABLE PAVED MAT AND STRUCTURAL SPRAY AND STRIPING ON TRACK AND EVENTS.
- [C] NEW GOAL POST WITH FOUNDATION.
- [D] CONCRETE SLAB, TRACK SURFACE, AND VAULT BOX FOR POLE VAULT.
- [E] COMPLETE POLE VAULT PIT PACKAGE TO INCLUDE PIT, COVER, STANDARDS, BASE PAD, CROSS BARS, AND POLE TREE. ALL PER NFHS RULES. COLOR TO BE SELECTED BY OWNER.

LEGEND

- PROPERTY LINE
- DARK COLOR TURF
- LIGHT COLOR TURF
- NEW TRACK SURFACE
- CONCRETE
- PERIMETER RIBBON CURB

GENERAL NOTES:

1. DIMENSIONS SHOWN HEREON ARE TO THE BACK OF CURB, CENTERLINE OF STRIPING, OR EDGE OF CONCRETE.

2. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS SHOWN HEREON ARE PROVIDED BASED ON A SURVEY PREPARED BY SKG ENGINEERING.

3. EXISTING CONDITIONS, UTILITIES, SETBACKS AND EASEMENTS REPRESENT THE INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD NOT BE CONSTRUED AS EXACT AND COMPLETE AND ITS USE DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR LOSSES DUE TO ANY INACCURACIES. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES FOUND.

4. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

DEMOLITION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

2. ALL DEMOLITION AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL RULES AND REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL, ADJUSTMENT, OR DEMOLITION OF ANY AND ALL EXISTING ELEMENTS WHICH MAY BE IN CONFLICT WITH THE WORK. COORDINATE WITH OWNER OF AFFECTED ELEMENT PRIOR TO WORK.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 3, 2026

SAN ANGELO ISD

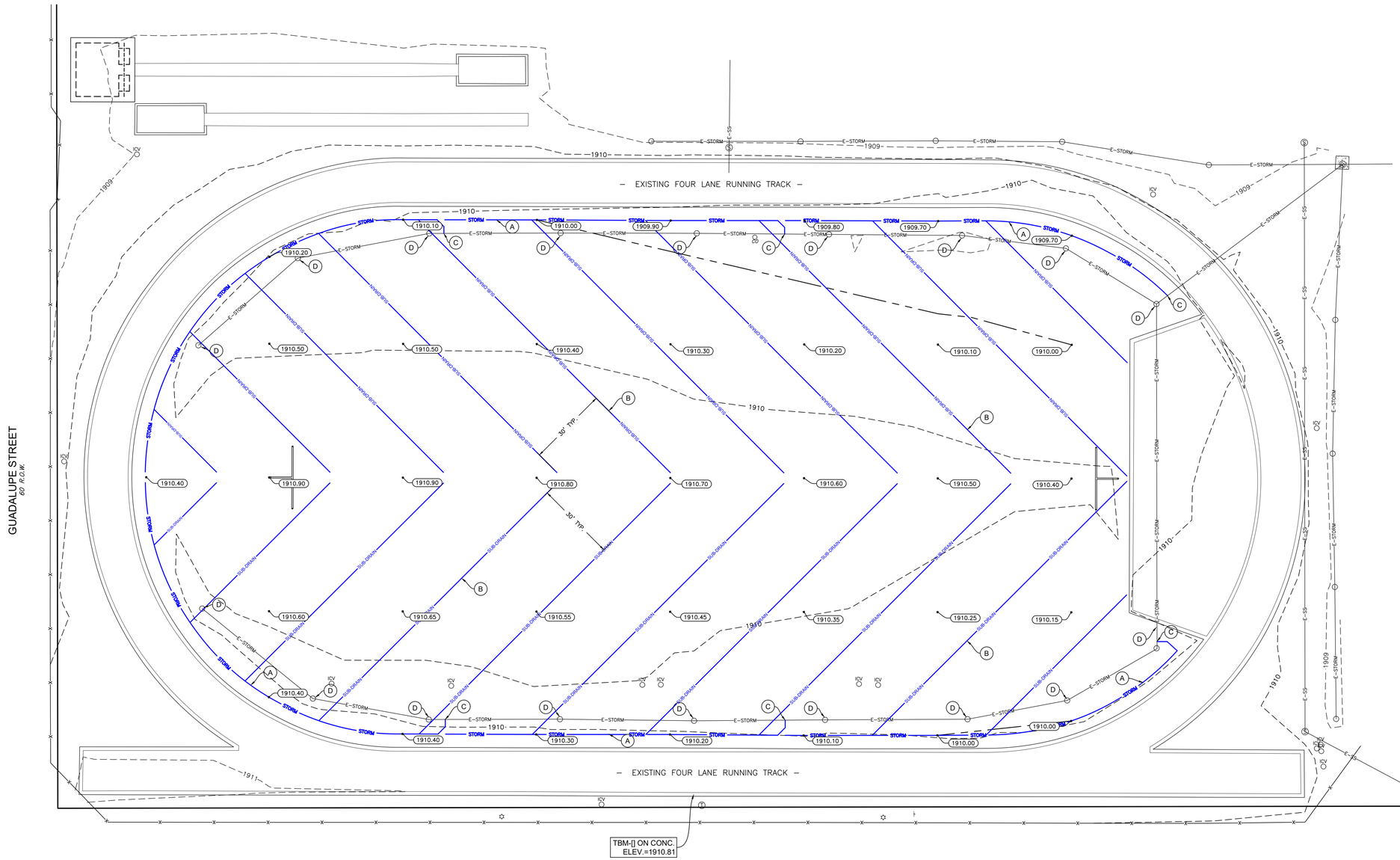
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE PLAN
LONE STAR MIDDLE SCHOOL
2500 SHERWOOD WAY

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. K-C1.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-K_TEXANS.dwg



KEYED NOTES:

(A) 6" PERFORATED STORM DRAIN LINE @ 0.5% MIN. SLOPE TO CONNECTION AT EXISTING STORM DRAIN LINE.

(B) 12" FLAT PANEL PERFORATED STORM DRAIN LINE.

(C) WATER TIGHT INSERTA TEE IN EXISTING STORM DRAIN LINE.

(D) PROVIDE 1" STAINLESS STEEL PLATE OVER TOP OF EXISTING STORM DRAIN INLETS.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 1911.40 PROPOSED SPOT ELEVATION
- E-STORM EXISTING STORMSEWER
- STORM PROPOSED STORMSEWER
- SUB-DRAIN PROPOSED FLAT PANEL DRAIN

GRADING NOTES:

1. CONTOURS SHOWN HEREON BASED ON A SURVEY BY SKG ENGINEERING. EXISTING LINE LOCATIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.

2. WITHIN THE PROJECT AREA, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE, TYPE, AND LOCATION OF PIPING AND UTILITIES AND PROTECTING AND REPAIRING THE SAME AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE UNIFORM SLOPE BETWEEN SPOT ELEVATIONS AND CONTOURS EXCEPT AS REQUIRED OTHERWISE.

3. SPOT ELEVATIONS AND GRADES SHOWN HEREON REPRESENT THE FINISHED SURFACE. SITE CONTRACTOR TO ACCOUNT FOR THICKNESS OF BASE, TURF, TRACK SURFACE, CONCRETE, OR OTHER MISC. SURFACES TO BE APPLIED TO REACH FINAL GRADE.

4. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

5. PROVIDE POSITIVE DRAINAGE TO INLETS OR PIPING TO PREVENT PONDING.

6. THE FINISHED SURFACE SHALL BE SMOOTH AND TRUE TO WITHIN 0.04 FEET OF THE ESTABLISHED LINE, GRADE, AND CROSS SECTION. AREAS THAT POND WATER GREATER THAN 1/4 INCH DEEP WILL NOT BE PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING DEFICIENT AREAS.

7. ALL SITE WORK SHALL BE IN ACCORDANCE WITH, OR SURPASS RECOMMENDATIONS OF SOILS REPORT, DRAWINGS, AND SPECIFICATIONS. IF A CONFLICTS ARISES, THE MORE PROHIBITIVE SHALL TAKE PRECEDENCE AND BE CONSIDERED TO BE THE INTENT OF THE PROJECT DOCUMENTS. IN ALL CASES, STRICTLY ADHERE TO DRAWINGS AND SPECIFICATIONS, UNLESS SOILS REPORT RECOMMENDATION EXCEEDS THE DRAWINGS AND SPECIFICATIONS.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE PLANS, DETAILS, AND SPECIFICATIONS. AN INDEPENDENT CONSTRUCTION MATERIAL TESTING COMPANY SHALL BE RETAINED TO PERFORM COMPACTION TESTING OF SUBGRADE, FILL, AND ALL MATERIALS INCORPORATED IN ACCORDANCE WITH THE SPECIFICATIONS. RESULTS ARE TO BE EMAILED TO SKG ENGINEERING AT RG@SKGE.COM WITHIN 48 HOURS OF TESTING. COMPACTION AND MOISTURE REQUIREMENTS MUST BE MET AND DOCUMENTED BY TESTING BEFORE THE NEXT LIFT OF MATERIAL IS PLACED ABOVE. THE ENGINEER IS NOT RESPONSIBLE FOR ENSURING TESTING IS PERFORMED OR THAT THE WORK MEETS THE REQUIREMENTS. SHOULD ANY REQUIRED TEST NOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UNCOVER OR UNDO AND TEST AS REQUIRED.

80 GRAPHIC SCALE 40 20 10 0 FEET

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
705 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1285
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608 & 10102400
www.skgtx.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC F-7608
MAR. 3, 2026

SAN ANGELO ISD

SAN ANGELO ISD
ATHLETIC FIELDS PROJECT
SAN ANGELO, TEXAS

GRADING AND
DRAINAGE PLAN
LONE STAR MIDDLE SCHOOL
2500 SHERWOOD WAY

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 3, 2026
JOB NO. 25-E-1488	SHEET NO. K-C2.1
SCALE: 1"=20'	

N:\Engineering\2025\25E1488 SAISD Athletic Projects\25E1488-K_TEXANS.dwg

1 CONSTRUCTION NOTES

NO SCALE

1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,600 PSI, A SLUMP BETWEEN 4 TO 6 INCHES, AN AIR CONTENT BETWEEN 3% AND 6%, A ROUGH BROOM FINISH, AND SCORE OR CUT CONTROL JOINTS 1" DEEP AND FILL WITH JOINT SEALING COMPOUND @ MAX. 15' O.C.E.W.

2. COMPACTED SUBGRADE – SCARIFY, MOISTURE CONDITION, AND COMPACT THE TOP 6" TO AT LEAST 95% STANDARD PROCTOR DENSITY AT A MOISTURE CONTENT WITHIN ±3% POINTS OF THE OPTIMUM MOISTURE CONTENT.

3. GEOTEXTILE FABRIC SHALL BE MIRAFI 140N NONWOVEN GEOTEXTILE OR APPROVED EQUAL.

4. GEOMEMBRANE LINER TO THE 30 MIL RPE, 15.6 OZ/SQ.YD., UV RESISTANT MATERIAL THAT RETAINS OVER 90% STRENGTH AFTER 2000 HOURS OF DIRECT SUNLIGHT 15 YEAR EXPOSED UV PRODUCT, HYDROCARBON STABLE, SINGLE SCRIM LAMINATED LDPE WITH LLDPE FILM, PUNCTURE RESISTANT UP TO 202 LBS.

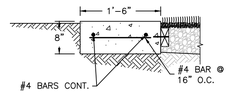
5. STORM DRAIN LINES SHALL BE ADS N-12 SMOOTH INTERIOR PIPE AS MANUFACTURED BY ADS AND SHALL BE INSTALLED AT A MINIMUM SLOPE OF 0.10%. FITTING USED WITH THE PIPING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

6. COMPACTED BASE – CRUSHED LIMESTONE PER TxDOT ITEM 247, TYPE A, GRADE 2. COMPACT TO AT LEAST 98% STANDARD PROCTOR DENSITY

7. REINFORCING BARS SHALL MEET ASTM A615, GRADE 60.

8. DRAINAGE STONE– USE A PLATE COMPACTOR OR OTHER SUITABLE COMPACTION EQUIPMENT TO HAVE ITS INDIVIDUAL STONE FACETS PROPERLY ORIENTED. TO BE AN OPEN GRADED STONE WITH THE FOLLOWING GRADATION:

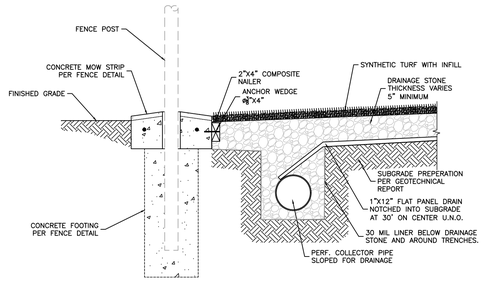
% PASSING	SIEVE SIZE
100	1 1/2"
90–100	1"
20–50	1/2"
0–10	#4



RIBBON CURB

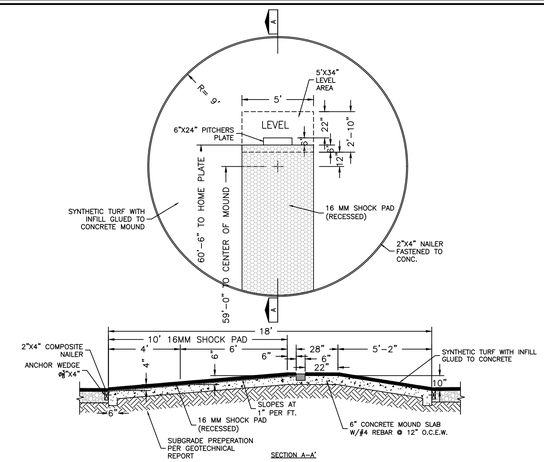
2 TURF EDGE DETAIL

NO SCALE



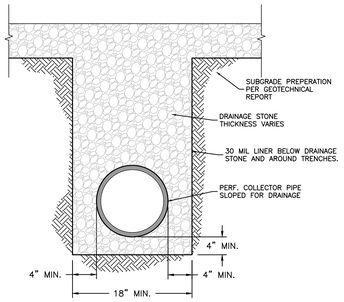
3 BASEBALL PITCHER'S MOUND DETAIL

NO SCALE



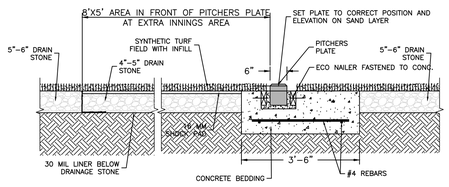
4 PERFORATRED DRAIN PIPE DETAIL

NO SCALE



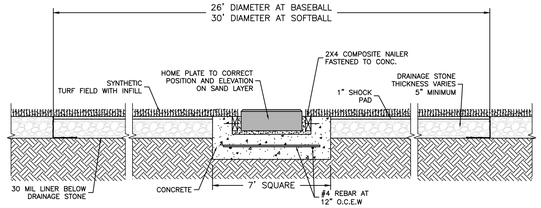
5 SOFTBALL PITCHER'S PLATE DETAIL

NO SCALE



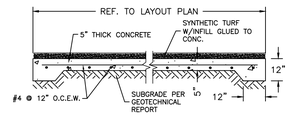
6 HOME PLATE DETAIL

NO SCALE



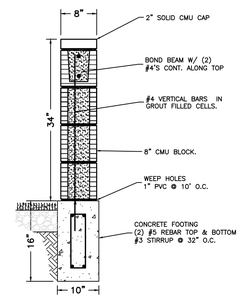
7 CONCRETE FLATWORK DETAIL

NO SCALE



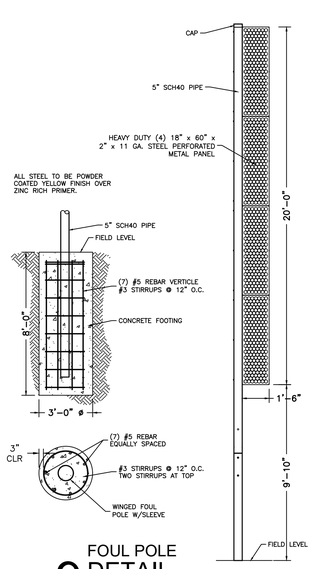
8 BACKSTOP WALL DETAIL

NO SCALE



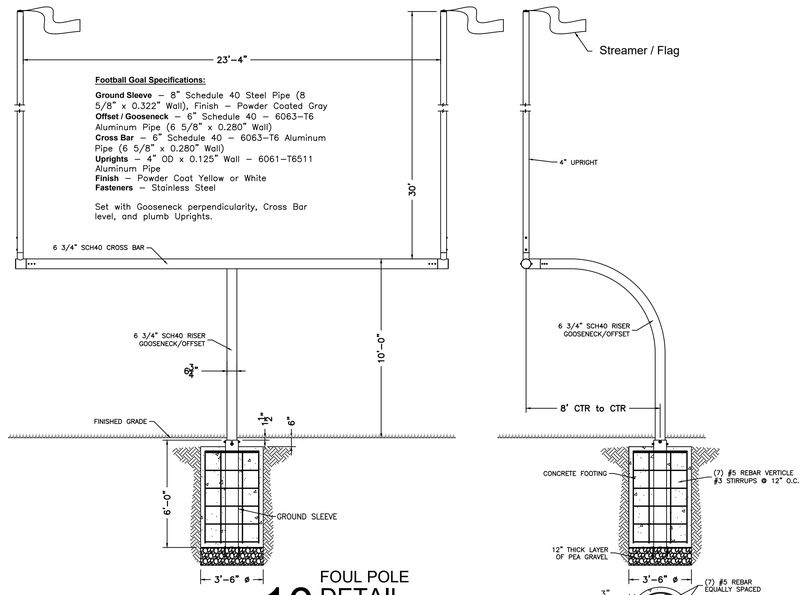
9 FOUL POLE DETAIL

NO SCALE



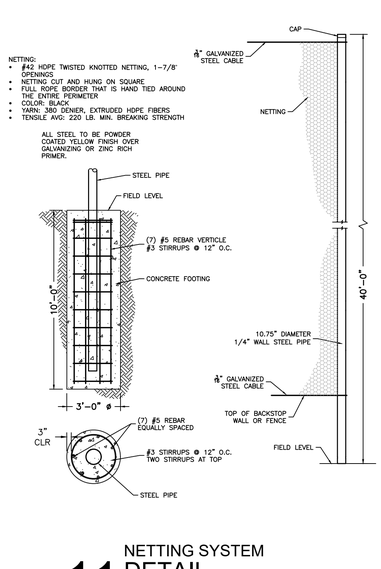
10 FOUL POLE DETAIL

NO SCALE



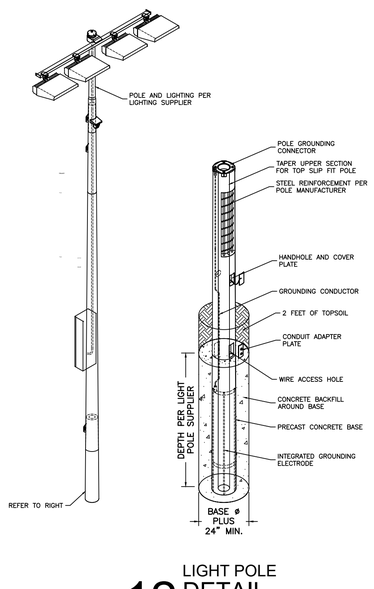
11 NETTING SYSTEM DETAIL

NO SCALE



12 LIGHT POLE DETAIL

NO SCALE



SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
306 SOUTH ABE STREET PHONE: 325.655.7200
SAN ANGELO, TEXAS 76903 FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

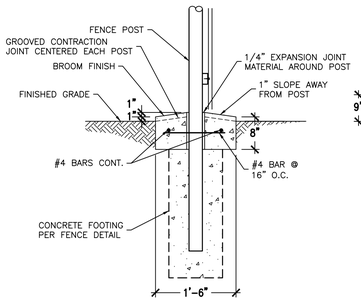
SAN ANGELO ISD

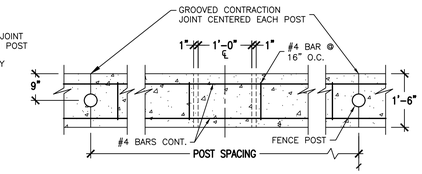
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE DETAILS

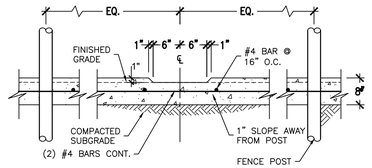
REVISIONS

DWG BY: RTG	DWG. DATE: MAR. 2, 2026
JOB NO. 25-E-1488	SHEET NO. C3.1
SCALE: VARIES	





PLAN VIEW

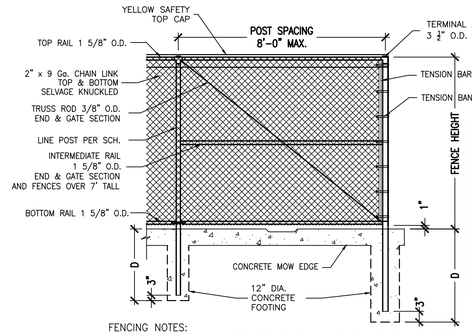


ELEVATION

SECTION

NOTES:
1. INSTALL 1/2" DOWELED EXP JT @ 50' O.C. MAX. AT A CONTRACTION JOINT.
2. 12" OPENINGS CENTERED BETWEEN POSTS TO ALLOW DRAINAGE

1 MOW STRIP DETAIL
NO SCALE

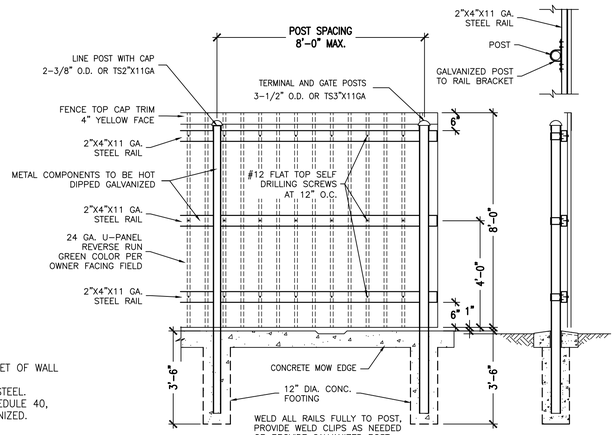


FENCING NOTES:
1. CONTRACTOR SHALL PROVIDE FENCING SUBMITTAL THAT INCLUDES ALL COMPONENTS AT LEAST 7 DAYS PRIOR TO STARTING WORK.
2. FENCE COMPONENTS SHALL CONFORM TO THE CHAIN LINK FENCE MANUFACTURES INSTITUTE GUIDE FOR SPECIFYING COMMERCIAL, INDUSTRIAL, AND SECURITY CHAIN LINK FENCE AND GATES.
3. CHAIN LINK FABRIC TO BE STRETCHED TAUT FROM SAG.
4. FASTEN FABRIC TO TOP & BOTTOM RAIL EVERY 18".
5. FASTEN TO EVERY LINE POST WITH TIE WIRES 12" SPACING.
6. ALL FENCE POST TO BE SCH 40, TYPE 1
7. MESH TO BE PVC COATED BLACK WIRE (9 GA WIRE WITH 0.13 mm PVC COATED LAYER)

FENCE SCHEDULE			
FENCE HEIGHT	4'	6'	8'
D=FOOTING DEPTH LINE & END, GATES <9'	30"	36"	42"
D=FOOTING DEPTH END, GATES 9' TO 16'	36"	42"	48"
GATE POST GATES < 9'	2 7/8"	2 7/8"	3 1/2"
GATE POST GATES 9' TO 16'	2 7/8"	3 1/2"	4"
LINE POST	2 3/8"	2 7/8"	2 7/8"
TERMINAL	2 7/8"	2 7/8"	3 1/2"

FENCING NOTES:
1. OVERALL PLUMBNESS OF WALL 1"/6 FEET OF WALL HEIGHT.
2. ALL HARDWARE SHALL BE GALVANIZED STEEL.
3. ALL PIPE SHALL BE ASTM F 1083 SCHEDULE 40, GRADE 60 KSI AND HOT-DIPPED GALVANIZED.

2 CHAINLINK FENCE DETAIL
NO SCALE



WELD ALL RAILS FULLY TO POST, PROVIDE WELD CLIPS AS NEEDED OR PROVIDE GALVANIZED POST TO RAIL BRACKET.

RAILS AND U-PANEL TO BE FIELD SIDE OF THE POSTS.

PROVIDE TRIM PIECES AT ALL CORNERS AND GATES.

3 METAL OUTFIELD FENCE DETAIL
NO SCALE

4 BATTER'S EYE DETAIL
NO SCALE

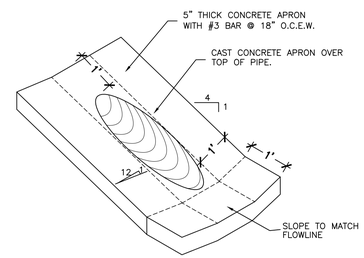
ALL METAL HARDWARE TO BE GALVANIZED.

ALL PANELS TO HAVE A 20 YEAR WARRANTY AGAINST BLISTERING, FLAKING, WARPING, PEELING, OR STRUCTURAL FAILURE.

RAILS AND PANELS TO BE FIELD SIDE OF THE POSTS.

PROVIDE TRIM PIECES AT ALL CORNERS AND GATES.

5 DIAMOND-WALL OUTFIELD FENCE DETAIL
NO SCALE



6 END TREATMENT DETAIL
NO SCALE

SKG ENGINEERING, LLC
SURVEYING • ENVIRONMENTAL • LAB/CMT
708 SOUTH ABE STREET
SAN ANGELO, TEXAS 76903
PHONE: 325.655.1288
FAX: 325.657.8189
FIRM REGISTRATION NUMBER F-7608
www.skge.com

STATE OF TEXAS
RUSSELL T. GULLY
87727
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DRAWING WAS AUTHORIZED BY RUSSELL T. GULLY, P.E. 87727
SKG ENGINEERING, LLC #F-7608
MAR. 2, 2026

SAN ANGELO ISD

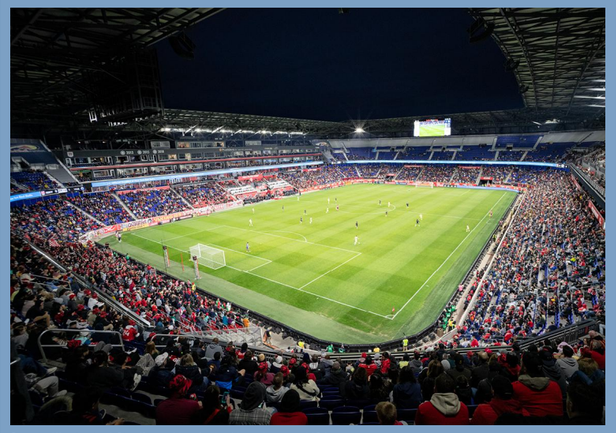
SAN ANGELO ISD ATHLETIC FIELDS PROJECT SAN ANGELO, TEXAS

SITE DETAILS

REVISIONS

DWG BY:	DWG. DATE:
RTG	MAR. 2, 2026
JOB NO: 25-E-1488	SHEET NO. C3.2
SCALE: VARIES	

We Make It Happen®



Sports Illustrated Stadium, Harrison, New Jersey, USA



UBS Arena, Elmont, New York, USA



Iowa Women of Achievement Bridge, Des Moines, Iowa, USA



Tottenham Hotspur FC Training Ground, Tottenham, London, UK

Central High School Tennis Courts

San Angelo,TX

Sales Representative: Ben Voelliger · Designed By: L. Schlee · Design No.: 252200A · February 26, 2026

Not to be reproduced in whole or part without the written consent of Musco Lighting. ©1981, 2026 Musco Sports Lighting, LLC.

Central High School Tennis Courts
San Angelo,TX

LIGHTING SYSTEM

Structure/Fixture Summary

Structure ID	Structure Height	Fixt. Attachment Ht.	Fixture Qty	Fixture Type	Load	Circuit
T1-T4	40'	40'	2	TLC-LED-900	1.76 kW	A
4			**8**		**7.04 kW**	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Tennis	7.04 kW	8

Fixture Type Summary

Type	Circuit	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-900	A	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	8

Single Fixture Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Fixture (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination Ave					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Tennis	Horizontal Illuminance	55.98	44	62	1.40	1.26	A	8

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

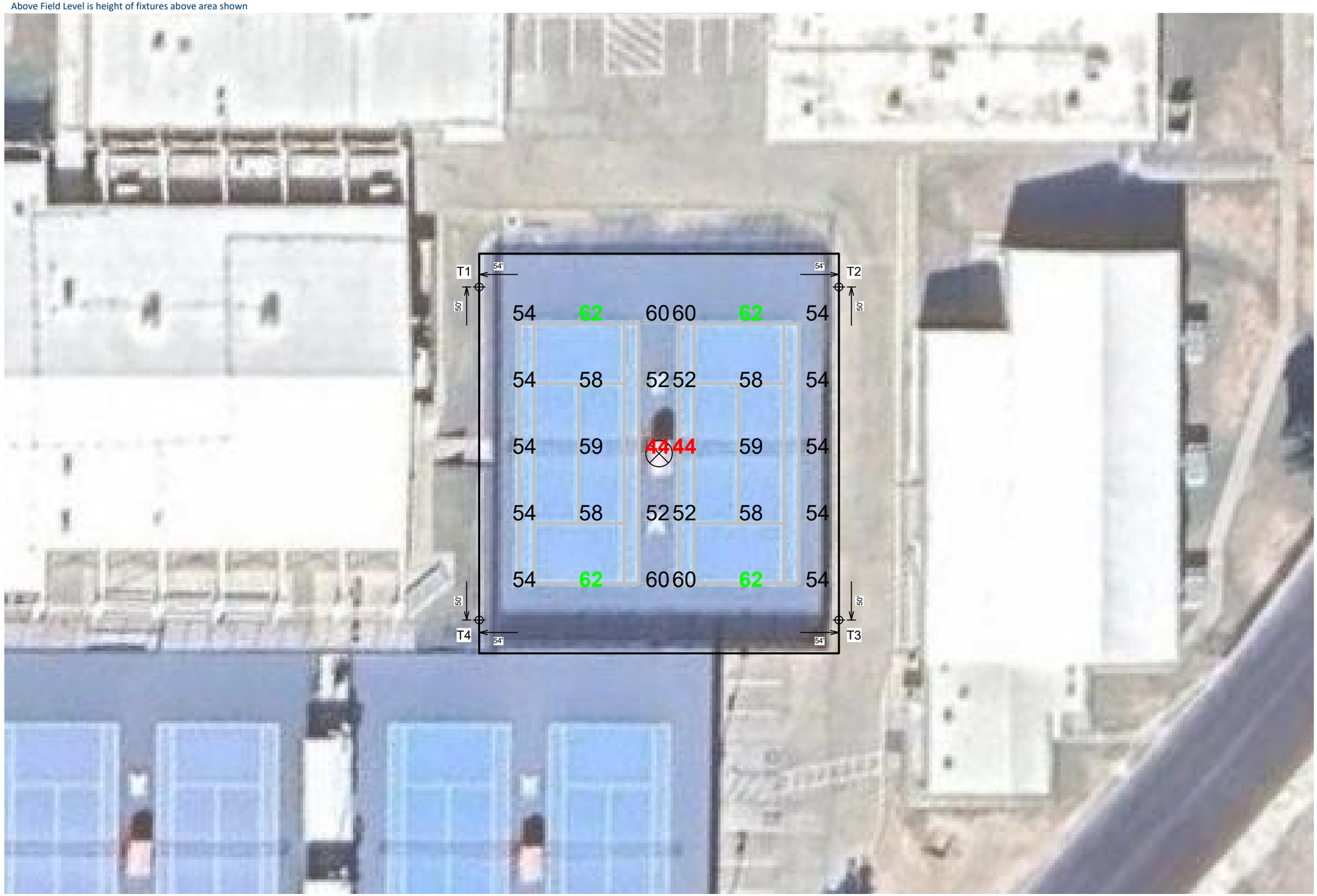
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	T1-T4	40'	-	40'	TLC-LED-900	2	2	0
4	Totals					8	8	0

Above Field Level is height of fixtures above area shown



SCALE IN FEET 1 : 30

0' 30' 60'

ENGINEERED DESIGN By: L. Schlee • File #252200A • 26-Feb-26

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

Central High School Tennis Courts

San Angelo,TX

Grid Summary

Name:	**Tennis**
Size:	2 Court - 12' Spacing
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**55.98**
Maximum:	62
Minimum:	44
Avg/Min:	1.26
Max/Min:	**1.40**
UG (adjacent pts):	0.00
CU:	0.88
No. of Points:	30
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**8**
Total Load:	7.04 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

musco We Make It Happen.

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	T1-T4	40'	-	40'	TLC-LED-900	2	2	0
4	Totals					8	8	0

Above Field Level is height of fixtures above area shown

Central High School Tennis Courts

San Angelo,TX

Grid Summary

Name:	**Tennis Spill @ 3ft.**
Spacing:	30.0'
Height:	3.0' above grade

Illumination Summary

INITIAL HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0000**
Maximum:	0.00
Minimum:	0.00
CU:	0.00
No. of Points:	47
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**8**
Total Load:	7.04 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 60

0' 60' 120'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: L. Schlee • File #252200A • 26-Feb-26

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	T1-T4	40'	-	40'	TLC-LED-900	2	2	0
4	Totals					8	8	0

Above Field Level is height of fixtures above area shown

Central High School Tennis Courts

San Angelo,TX

Grid Summary

Name:	**Tennis Spill @ 5ft.**
Spacing:	30.0'
Height:	5.0' above grade

Illumination Summary

INITIAL MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0000**
Maximum:	0.00
Minimum:	0.00
CU:	0.00
No. of Points:	47
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**8**
Total Load:	7.04 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 60

0' 60' 120'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: L. Schlee • File #252200A • 26-Feb-26

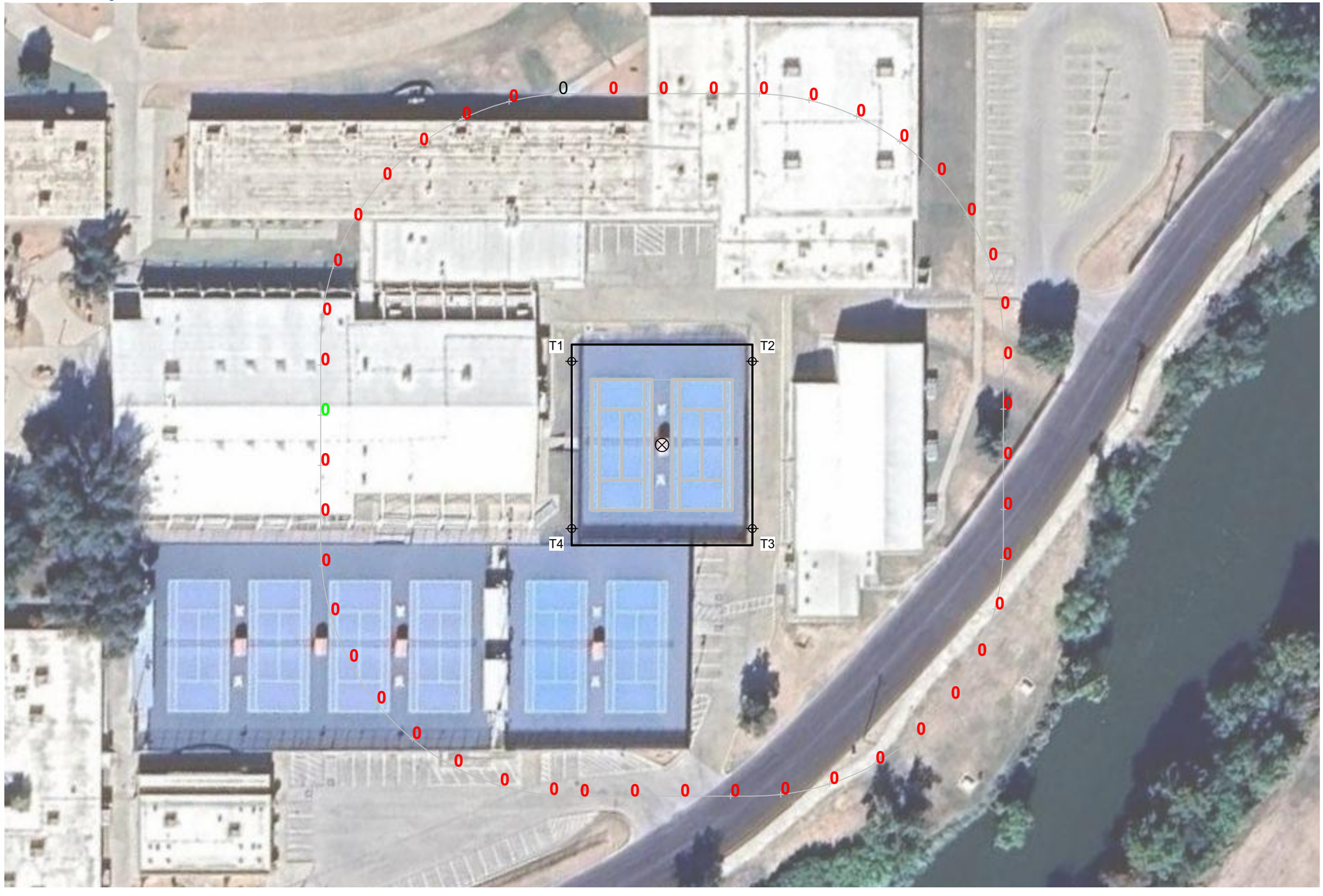
MUSCO We Make It Happen.

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
4	T1-T4	40'	-	40'	TLC-LED-900	2	2	0
4	Totals					8	8	0

Above Field Level is height of fixtures above area shown



Central High School Tennis Courts

San Angelo,TX

Grid Summary

Name:	**Tennis Spill @ 5ft.**
Spacing:	30.0'
Height:	5.0' above grade

Illumination Summary

	INITIAL CANDELA (PER FIXTURE)
	Entire Grid
Scan Average:	**0.0032**
Maximum:	0.11
Minimum:	0.00
CU:	0.00
No. of Points:	47
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**8**
Total Load:	7.04 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 60

0' 60' 120'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: L. Schlee • File #252200A • 26-Feb-26

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

Central High School Tennis Courts

San Angelo,TX

Equipment Layout

INCLUDES:
· Tennis

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

Structure				Fixtures		
QTY	STRUCTURE ID	SIZE	GLOBAL ELEVATION	ABOVE GLOBAL LEVEL	FIXTURE TYPE	QTY/POLE
4	T1-T4	40'	-	40'	TLC-LED-900	2
4	Totals					8

Above Global Level is height of fixtures above design (0,0,0)

Single Fixture Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Fixture (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3



SCALE IN FEET 1 : 40

0' 40' 80'

ENGINEERED DESIGN By: L. Schlee • File #252200A • 26-Feb-26

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC.
©1981, 2026 Musco Sports Lighting, LLC.

San Angelo Independent School District
REQUEST FOR PROPOSAL

Bid Name:
Athletic Fields Projects, 2025 Bond

Opening Date and Time:
3PM, Monday, March 23, 2026

Bid Number: 26-007

Completion Date: 07/16/27

Location of Opening:
Purchasing Department
1621 University
San Angelo, TX 76904

The undersigned authorized representative of the vendor indicated below hereby acknowledges:

1. That he/she is authorized to enter into contractual relationships on behalf of the company indicated below, and
2. That he/she has carefully examined this Bid Notice, the accompanying Bid Forms, and the General Terms and Conditions and Item Specifications associated with this Bid Invitation, and
3. That he/she proposes to supply any products or services submitted under this Bid Invitation at the prices quoted and in strict compliance with the General Terms and Conditions, and Item Specifications associated with this Bid Invitation, unless any exceptions are noted in writing with this bid response, and
4. That if any part of the bid is accepted, he/she will furnish all products or services awarded under this bid at the prices quoted and in strict compliance with the General Terms and Conditions, and Item Specifications associated with this Bid Invitation, unless any exceptions are noted in writing with this bid response, and
5. That any and all exceptions to the General Terms or Conditions of this bid have been noted in writing in this bid response, and that no other exceptions to the General Terms or Conditions will be claimed.

By submitting a bid, each bidder agrees to waive any claim it has or may have against the San Angelo Independent School District, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid; waiver of any requirements under the Bid Documents; or the Contract Documents; acceptance or rejection of any bids; and award of the Contract.

Offeror agrees to exhaust its administrative remedies under District Policy and the Disputes Clause of any resulting contract before seeking judicial relief of any type in connection with any matter related to this solicitation, the award of any contract, and any dispute under any resulting contract.

Name of Bidding Company	Date
Printed name of Authorized Representative	Signature of Authorized Representative
Position of Authorized Representative	E-mail Address

SAN ANGELO INDEPENDENT SCHOOL DISTRICT

Athletic Fields Projects, 2025 Bond:

Request for Proposal #26-007

Authorizing Rep. _____ **Company Name** _____

	Item	Total Cost	Leadtime for Material (Calendar Days)	Total Number of calendar days to complete job
Central High School, Baseball Field, 1919 Knickerbocker Rd, San Angelo, TX 76904				
1	**Bid Item, Baseball Field Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Central High School, Softball Field, 1919 Knickerbocker Rd, San Angelo, TX 76904				
2	**Bid Item, Softball Field** – Turf and other associated work. *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Central High School, Football Field, 1919 Knickerbocker Rd, San Angelo, TX 76904				
3	**Bid Item, New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Central High School, Band Field, 655 Caddo St, San Angelo, TX 76901				
4	**Bid Item, Band Field – Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Central High School, Tennis, 655 Caddo St, San Angelo, TX 76901				
5	**Bid Item, Tennis Courts Lighting, Lights for 2 Newer Courts** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lake View High School, Baseball Field, 900 E 43rd St, San Angelo, TX 76903				
6	**Bid Item, Baseball Field, New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lake View High School, Softball Field, 900 E 43rd St, San Angelo, TX 76903				
7	**Bid Item, Softball Field, New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lake View, Football Field, 900 E 43rd St, San Angelo, TX 76903				
8	**Bid Item, Football Field, New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lake View, Tennis Courts, 900 E 43rd St, San Angelo, TX 76903				
9	**Bid Item, Tennis Courts and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Old Bobcat Stadium, Football Field, 1000 Pulliam St, San Angelo, TX 76903				
10	**Bid Item, Old Bobcat Stadium, Football Field New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lone Star Middle School, Football Field & Track, 2500 Sherwood Way, San Angelo, TX 76901				
11	**Bid Item, Lone Star Middle School, Football Field New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			

SAN ANGELO INDEPENDENT SCHOOL DISTRICT

Athletic Fields Projects, 2025 Bond:

Request for Proposal #26-007

Authorizing Rep. _____ **Company Name** _____

Item		Total Cost	Leadtime for Material (Calendar Days)	Total Number of calendar days to complete job
Lincoln Middle School, Football Field, 255 Lake View Heroes Dr, San Angelo, TX 76903				
12	**Bid Item, Lincoln Middle School, Football Field, New Turf and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
Lincoln Middle School, Tennis Courts, 255 Lake View Heroes Dr, San Angelo, TX 76903				
13	**Bid Item, Lincoln Middle School, Tennis Courts and other associated work.** *Turnkey project to include all work outlined in the Project Manual and Listed on accompanying plans.*			
	Discount For "All or None"	$		
	Total Cost with "All or None" Discount Taken	$		
	If awarded all projects. State you total number of Calendar days to complete all associated work in this project.	_____ Days		

San Angelo ISD reserves the right to pull individual projects and still take the all or nothing discount at the reduced rate.

San Angelo ISD will add an additional 5% to all PO's for an owners contingency.

Alternate			
1	Sub Diamond Wall Fencing on all Baseball & Softball Fields	$	Increase ☐ or Decrease ☐

Questionnaire		
1	Did you Attend the ***PRE BID WALK*** ?	Yes_____, No_____
2	Did you include your mandatory Bid Bond?	Yes_____, No_____
3	Do you have any deviations from the bid specifications (All deviation must be listed on FORM E to be accepted)	Yes_____, No_____

Important Dates	
03/11/26	**PRE BID WALK 9AM**
03/23/26	**Bids Due by 3PM**
03/26/26	**Board Approval**

References

List at least three ISD references or recent commercial customers, with contact information. Or attach 3 letters of reference to your bid.

Name Of Customer, Contact Email, Contact Phone Number

SAN ANGELO INDEPENDENT SCHOOL DISTRICT

GENERAL CONDITIONS FOR BIDDING

1. Bids shall be submitted on this form. All prices must be typed or written in ink. Bids written in pencil will not be accepted. Each bid shall be placed in a separate envelope, sealed and properly identified with the bid title and the time and date to be opened.

2. Bids must be received in the Purchasing Department office ***before the hour and date specified***. **DO NOT FAX OR EMAIL YOUR BID!**

3. The prices bid should be F.O.B. destination, inside delivery. All freight charges must be included in your bid pricing. If otherwise, state on Deviation/Compliance Signature form.

4. Delivery shall be made during normal school hours unless prior approval has been obtained from authorized District personnel.

5. All items bid must be new, unused, and in first-class condition, packaged in containers suitable for shipment and storage. If otherwise, state on Deviation/Compliance Signature form.

   All electrical items must meet all applicable OSHA standards and regulations, and must bear the appropriate listing from US, FMRC, NEMA, or U L Laboratories.

   Materials Safety Data Sheets (MSDS) on chemicals or any other products customarily requiring MSDS Sheets must be provided for each ordering department. MSDS Sheets must be delivered along with the shipment within the contract period. Additional MSDS Sheets must be provided in a timely manner at no charge upon request to the District.

6. Installation: the successful bidder shall provide the following services on the items bid, at no additional cost to the District, if otherwise, state on Deviation/Compliance Signature form.

   a. Provide transportation of items to the facility.
   b. Place the items in the proper location within the facility.
   c. Uncrate and completely assemble (if otherwise, state on Deviation/Compliance Signature form).
   d. Provide adjustment by a trained installation mechanic.
   e. Remove all the debris from site.

7. The District is exempt from Federal Excise Tax, and State Tax. Do not include tax in your bid totals. If it is determined that tax was included in the bid, it will not be included in the tabulation or any awards. The tax exemption certificate will be furnished upon request.

8. Any catalog, brand name, or manufacturer's reference used in the bid is **descriptive and not restrictive** and is intended to indicate type and quality desired. Bids on brands of like nature and quality will be considered. If bidding on other than referenced specifications, bid must show manufacturer, brand, model, etc. of item being offered. If other than brand(s) specified is offered, complete descriptive information of each article being bid should be included with the bid. If bidder takes no exception to the specification of referenced data, he will be required to furnish brand names, models, etc. as specified.

9. Samples, when requested, must be furnished at no cost to the District. Each sample, when requested, should be clearly marked with bidder's name and item number on the bid. **DO NOT ENCLOSE IN OR ATTACH BID TO SAMPLE**.

10. The Board of Trustees of San Angelo Independent School District reserves the right to accept or reject all or any part of any bid, waive minor technicalities and award the bid to best serve the interest of the District.

11. The District reserves the right to purchase or lease-purchase additional articles as listed on this bid subject to verification of the same or lower prices and conditions on bid.

12. All items and services being bid must conform to all appropriate local, state, and federal laws, ordinances, and regulations.

13. It is to be understood that the bidder, if awarded an order or contract, agrees to protect, defend, and hold harmless the San Angelo Independent School District from any suits or demands for payment that may be brought against it for the use of any patented material, process, article, or device that may enter into the manufacture and/or construction or from a part of the work covered by either order or contract and, bidder further agrees to indemnify and hold harmless the San Angelo Independent School District from suits or actions of every nature and description brought against it for, or on account of any injuries or damages received or sustained by any party or parties by, or for any of the acts of the vendor, his servants or agents.

14. It is **not** the policy of the District to purchase on the basis of low bids alone. In evaluating bids submitted and per the Texas Education Code 44.031(b), the following considerations shall be taken into account to determine the best value for the District.

    a. the purchase price;
    b. the reputation of the vendor and of the vendor's goods or services;
    c. the quality of the vendor's goods or services;
    d. the extent to which the goods or services meet the district's needs;
    e. the vendor's past relationship with the district;
    f. the impact on the ability of the district to comply with laws and rules relating to historically underutilized businesses;
    g. the total long-term cost to the district to acquire the vendor's goods or services;
    h. for a contract for goods and services, other than goods and services related to telecommunications and information services, building construction and maintenance, or instructional materials, whether the vendor or the vendor's ultimate parent company or majority owner: (a) has its principal place of business in this state; or (b) employs at least 500 persons in this state; and
    i. any other relevant factor specifically listed in the request for bids and proposals.

15. The contract will be awarded in the best interest of San Angelo Independent School District. Specific award information is located under Specific Terms and Conditions Item #1.

16. Any and all protests regarding San Angelo ISD bidding procedures will be governed by the San Angelo Independent School District Board Policy for Grievances.

17. If the District fails to appropriate funds to provide for the annual renewal of a contract, the District may cancel without termination charge. This is provided that the Contractor receives at least 30 days written notice of the termination stating the lack of funding as the reason for the termination.

18. The San Angelo Independent School District may not be held liable for non-funding of a contract caused through no fault of its own.

19. Vendors not responding appropriately to Bid Requests will be deleted from our qualified vendor list and will not be reinstated unless specifically requested. SAISD reserves the right to delete vendors that do not respond appropriately.

20. All Bidders must execute the "Affidavit of Non-Collusion", "Felony Conviction Notification", "Bidders Certification", "Debarment and Suspension Certification Form", "Deviation/Compliance Signature Form", or "No Bid Notification" enclosed herewith for his bid to be considered. The name of the company representative on these forms should be the same.

21. Bid results will be presented to the San Angelo Independent School District Board of Trustees for approval at the earliest opportunity following the bid/proposal opening if $50,000 or greater.

22. It is the policy of the San Angelo Independent School District not to discriminate on the basis of sex, disability, race, color, or national origin in its educational programs and/or activities, nor in its employment practices.

23. The bidder shall not sell, assign, transfer, or convey any contract resulting from this proposal, in whole or part, without the prior written consent from the District. Such consent shall not relieve the assigned of liability in the event of default by the assignee.

STANDARD TERMS AND CONDITIONS

1. CERTIFICATION: By signature on Bid Document the vendor certifies that:

   a. The vendor has not paid, or agreed to pay, any person, other than bona fide employees, a fee or brokerage resulting from the award of any contract resultant from this bid.
   b. The prices in this bid have been arrived at independently without consultation, communication, or agreement, for the purpose of restricting competition as to any matter relating to such prices, with any other vendor or potential vendor.

2. CONTRACT MODIFICATION: No modification of this contract shall bind buyer unless a formal contract amendment is executed between buyer and vendor.

3. CONTRACT AND PURCHASE ORDERS: A response to this Bid Document is an offer to contract with the SAISD and its members based upon the Item Specifications and the Standard Terms and Conditions contained in the Bid Document. Bids do not become contracts unless and until they are accepted by the SAISD and put into effect by the issuance of a Purchase Order(s) signed by an authorized representative of the SAISD Purchasing Department.

   This contract shall collectively include (1) the General Terms and Conditions and the Item Specifications included in the Bid Document and any subsequent addenda thereto, (2) the bidder's signed Notice of Bid Document sheet and any other data collection sheets included with the Bid Invitation, (3) the bidder's entire response to the Bid Invitation, (4) the bidder's Notice of Award Letter, (5) and any additional terms, conditions, or instructions contained in each individual Purchase Order. The contract shall be interpreted by and governed under the law of the State of Texas in Tom Green County.

4. PACKING AND SHIPPING: (If applicable) the vendor shall be responsible for industry standard packing which conforms to requirements of carrier's tariffs and ICC regulations. Containers must be clearly marked as to the purchase order number. All shipments are to be F.O.B. destination, freight prepaid, to San Angelo Independent School District at the specific address on the purchase order. Delivery shall be made during normal working hours only, 8:00am to 3:00pm, unless approval for late delivery has been obtained.

5. NO REPLACEMENT OF DEFECTIVE TENDER: (If applicable) every tender of goods must fully comply with all the provisions of this contract as to time of delivery, quantity, assortment, quality, and the like. If a tender is made which does not fully conform, this shall constitute a breach, and vendor shall not have the right to substitute a conforming tender.

6. DEFAULT IN ONE INSTALLMENT TO CONSTITUTE A TOTAL BREACH: (If applicable) each installment or lot of this contract is dependent on every other installment or lot and delivery of non-conforming goods/services or a default of any nature under one installment or lot will impair the value of the whole contract and constitutes a breach of the contract as a whole.

7. GRATUITIES: The buyer may, by written notice to the vendor, cancel this contract if it is found by buyer that gratuities, in the form of entertainment, gifts or otherwise were offered or given by the vendor or any agent or representative of the vendor, to any employee of the San Angelo Independent School District 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. In the event this contract is canceled by the buyer pursuant to this provision, buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold from the vendor the amount of the gratuity.

8. WARRANTIES: (If applicable) vendor warrants that all goods delivered under this contract will conform to the requirements of this contract (including all applicable descriptions, specifications, drawings, and samples), and will be free from defects in design and fit for the intended purposes. Any inspection or acceptance of the goods by buyer shall not alter or affect the obligations of vendor or the right of buyer under the foregoing warranties.

9. ASSIGNMENT-DELEGATION: No right or interest in this contract shall be assigned by vendor without the written permission of buyer, and no delegation of any duty of vendor shall be made

without permission of buyer. Any attempted assignment of delegation shall be wholly void and totally ineffective for purposes unless made in conformity with this paragraph.

10. ASSIGNMENT-CLAIMS: Vendor and the San Angelo Independent School District recognize that in actual economic practice overcharges resulting from anti-trust violations are in fact borne by the District. Therefore, the vendor hereby assigns the District any and all claims for such overcharges.

11. ADVERTISING: Vendor shall not advertise or publish, without the District's prior consent, the fact that the District has entered into this contract, except to the extent necessary to comply with proper requests for information as provided by appropriate statues.

12. TITLE AND RISK OF LOSS: (If applicable) the title and risk of loss of the goods shall not pass to the District until the District actually receives the goods at the point of delivery.

13. INSPECTION: (If applicable) all goods are subject to final inspection and acceptance by the District. Material/services failing to meet the requirements of this contract will be held at vendor's risk and may be returned to the vendor. If so returned, the cost of transportation, unpacking, inspection, repackaging, reshipping, or other like expenses are the responsibility of the vendor.

14. LIENS: All goods delivered, and labor performed under this contract shall be free of all liens, and if the District requests, a formal release of all liens will be delivered to the District.

15. INDEMNIFY: Vendor agrees to indemnify and hold the District harmless from any damage or expense whatsoever resulting to the District from any and all claims and demands on account of infringement or alleged infringement of any patent in connection with the manufacture of use of any product included in this contract. Upon written requests the vendor will defend, at it's own cost and expense, any legal action or suit against the District involving any such alleged patent infringement and will pay and satisfy any and all judgements or decrees rendered in any such legal actions or suits. Vendor will indemnify San Angelo Independent School District against all claims for damages to persons or property resulting from defects in materials or workmanship.

16. REMEDIES AND APPLICABLE LAWS: This contract shall be governed by San Angelo Independent School District and vendor shall have all remedies afforded each by the Uniform Commercial Code, as adopted in the State of Texas, except as otherwise provided in this contract or in statutes pertaining specifically to the State. This contract shall be governed by the laws of the State of Texas, and suits pertaining to this contract may be brought only in the courts of the State of Texas in Tom Green County.

17. CONFLICT OF INTEREST: This contract is subject to cancellation by buyer if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of San Angelo Independent School District, is at any time while the contract is in effect, an employee of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract.

18. FORCE MAJEURE: Neither party shall be held responsible for any losses resulting if the fulfillment of any terms or conditions of this contract is delayed or prevented by any other cause not within the control of the party whose performance is interfered with and which, by the exercise of reasonable diligence, said party is unable to prevent.

19. RIGHT TO ASSURANCE: Whenever one party to this contract in good faith has reason to question the other party's intent to perform, he may demand that the other party give a written assurance of this intent to perform. In the event that demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. INTERPRETATION-PAROL EVIDENCE: This contract is intended by the parties as a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of this agreement. No course of prior dealing between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this contract. Acceptance or acquiescence in a course of performance rendered under this contract shall not be relevant to determine the meaning of this contract even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity to object. Whenever a term defined by the Uniform Commercial Code is used in this contract, the definition contained in the Code is to control.

21. COMPLIANCE OF LAWS: The final contract must follow all federal and Texas State laws and regulations and is subject to termination by the Governing Board of the San Angelo Independent School District, termination for non-availability of funding and for prepayment, without penalty.

22. CHOICE OF LAW: The parties hereby agree that this agreement was negotiated, made and entered in the State of Texas and under the laws of the State of Texas.

23. INFRINGEMENT: Contractor agrees to protect San Angelo Independent School District from claims involving infringement or copyrights.

24. TECHNICAL SPECIFICATIONS: Technical specifications define the minimum acceptable standard.

25. REMEDIES FOR NON-PERFORMANCE OF CONTRACT, AND TERMINATION OF CONTRACT: If the vendor cannot comply with the terms and conditions in fulfilling its contract as anticipated, the vendor must supply the same products or services contracted from other sources at the contract price. The vendor's delay in the above will constitute the vendor's material breach of contract, whereupon the SAISD may terminate the vendor's contract for cause as provided by the remainder of this section.

If any delay or failure of performance is caused by a Force Majeure event as described in section #18 of this Standard Terms and Conditions document entitled "Force Majeure," the SAISD may, in its sole discretion, terminate this contract in whole or part, provided such termination follows the remaining requirements of this section.

Except as otherwise provided for within the Standard Terms and Conditions of this document, this contract may be terminated in whole or in part by either party in the event of substantial failure by the other party to fulfill its obligations under this contract through no fault of the terminating party; provided that no such termination may be implemented unless and until the other party is given (1) at least ten (10) days written notice (delivered by certified mail, return receipt requested) of intent to terminate, and (2) an opportunity for consultation with the terminating party, followed by a reasonable opportunity, of not more than ten (10) working days, to rectify the defects in products or performance, prior to termination.

Valid causes for termination of this contract will include, but are not limited to:

(a) The vendor's failure to adhere to any of the provisions of the General Conditions and Standard Terms and Conditions of the Bid Document.
(b) The vendor delivering any product(s) that fails to meet the Item Specifications included in this Bid Invitation relating to the awarded product(s).
(c) The vendor delivering any substitution(s) of product(s) different than those originally bid and awarded without the written approval of SAISD.
(d) The vendor's incomplete response to the Bid Document.
(e) And the vendor's noncompliance to any additional terms, conditions, or instructions contained in each individual Purchase Order issued by the SAISD.

26. ORDER OF PRECEDENCE: In the event of conflict, the following precedence shall prevail: 1) terms and conditions set forth on the face of the contract, 2) provisions set forth on specifications, 3) provisions set forth in Referenced Documents; and 4) the general bidding instructions to bidders.

27. ERRORS OR OMISSIONS: The District is not responsible for any bidder's errors or omissions.

28. CONFIDENTIAL INFORMATION: If a vendor believes that a bid, proposal, offer, or specification contains information that shall be withheld from disclosure, a statement advising the procurement officer must be attached and noted on page one of the document.

29. ADDENDUM: In the event that any changes to this Bid Document occur after the mailing or other delivery of the original Bid Document, the changes or corrections to this Bid Invitation will be made by addendum. ***It is your responsibility to obtain any addenda that pertains to this bid.*** We are no longer mailing the specifications or addenda.

30. EXTENSION/NON-APPROPRIATIONS CLAUSE: This contract may be renewed for two additional one-year terms if the vendor and the District agree.

31. Price increases for additional year will be negotiated not to exceed the CPI in the San Angelo area at the time of renewal. Price negotiations may be negotiated to prices below the current pricing.

32. Negotiations for additional years and price restructuring must be completed forty-five (45) days before the date of renewal.

33. INSURANCE REQUIREMENTS - PROOF OF INSURANCE WILL BE REQUIRED FOR GENERAL LIABILITY, AUTOMOBILE LIABILITY, AND WORKERS' COMP. INSURANCE LIMITS WILL BE $1,000,000 PER OCCURRENCE ON GENERAL LIABILITY, $500,000 ON AUTO, AND STATUTORY LIMITS ON WORKERS' COMP. THESE REQUIREMENTS APPLY TO ALL CATEGORIES WHERE SERVICES ARE PROVIDED ON A SAN ANGELO ISD SITE.

CONSTRUCTION BOND REQUIREMENTS - BONDING SURETIES MUST BE QUALIFIED TO DO BUSINESS IN TEXAS AND ACCEPTABLE TO THE DISTRICT.

BID BOND IN THE AMOUNT OF FIVE PERCENT (5%) OF THE BID MUST BE SUBMITTED WITH ANY CONSTRUCTION BID.
PAYMENT BONDS WILL BE REQUIRED IF THE CONTRACT FOR SERVICES EXCEEDS $25,000.00.
PERFORMANCE BONDS WILL BE REQUIRED IF THE CONTRACT FOR SERVICES EXCEEDS $100,000.00.

FORM A

NON-COLLUSION STATEMENT

The undersigned Proposer, by signing and executing this proposal, certifies and represents to the **San Angelo Independent School District** that Proposer has not offered, conferred or agreed to confer any pecuniary benefit, as defined by Section 1.07 (a)(6) of the Texas Penal Code, or any other thing of value, as consideration for the receipt of information or any special treatment or advantage relating to this proposal;

the Proposer also certifies and represents that Proposer has not offered, conferred or agreed to confer any pecuniary benefit or other things of value as consideration for the recipient's decision, opinion, recommendation, vote or other exercise of discretion concerning this proposal.

the Proposer certifies and represents that Proposer has neither coerced nor attempted to influence the exercise of discretion by any officer, trustee, agent or employee of the **San Angelo Independent School District** concerning this proposal on the basis of any consideration not authorized by law.

the Proposer also certifies and represents that Proposer has not received any information not available to other proposers so as to give the undersigned an advantage with respect to this proposal.

the Proposer further certifies and represents that Proposer has not violated any state, federal or local law, regulation or ordinance relating to bribery, improper influence, collusion or the like and that Proposer will not in the future, offer, confer, or agree to confer any pecuniary benefit or other thing of value of any officer, trustee, agent or employee of the **San Angelo Independent School District** in return for the person having exercised the person's official discretion, power or duty with respect to this proposal;

the Proposer certifies and represents that it has not now and will not in the future offer, confer, or agree to confer a pecuniary benefit or other thing of value to any office, trustee, agent or employee of the **San Angelo Independent School District** in connection with information regarding this proposal, the submission of this proposal, the award of this proposal or the performance, delivery or sale pursuant to this proposal;

the Proposer certifies that the Proposer has not prepared this proposal and will not prepare any future proposals arising from this Request for Proposal (RFP) in collusion with any other respondent, and that the content of any future proposals arising out of this RFP will not be communicated by the undersigned nor by any employee or agent to any other person engaged in this type of business prior to the District’s selection of a contractor for this RFP.

_____

FIRM NAME

_____

ADDRESS

_____

CITY/STATE/ZIP

_____

TYPED NAME OF REPRESENTATIVE(S)

_____

SIGNATURE OF REPRESENTATIVE(S)

_____

DATE

FORM B

FELONY CONVICTION NOTIFICATION

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.

This notice is not required of a publicly held corporation.
Please complete the information below:

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony convictions has been reviewed by me and the following information furnished is true to the best of my knowledge.

Vendor's Name:_____

Authorized Company Official's Name (please print or type):

_____

A. My firm is a publicly held corporation; therefore, this reporting requirement is not applicable:

Signature of Company Official:_____ Date:_____

B. My firm is neither owned nor operated by anyone who has been convicted of a felony.

Signature of Company Official:_____ Date:_____

C. My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:

Name of Felon(s):_____

Details of Conviction(s):_____

_____

Signature of Company Official:_____ **Date:**_____
(Name should be the same as on the affidavit-Form A)

Contractor is responsible for the performance of the persons, employees and/or subcontractors Contractor assigns to provide services for the San Angelo ISD pursuant to this Contract on any and all San Angelo ISD campuses or facilities. Contractor will not assign individuals to provide services at a San Angelo ISD campus or facility who have a history of violent, unacceptable, or grossly negligent behavior or who have a felony conviction, without the prior written consent of the San Angelo ISD Purchasing Department. Prior to supplying labor services under this Contract, Contractor shall provide a list identifying the individuals, employees and subcontractors that may be assigned to San Angelo ISD along with a letter signed by an appropriate officer of Contractor that affirms compliance with this provision. Contractor will revise such letter each time there is a change in Contractor's personnel assigned to a San Angelo ISD campus or facility, but in any case, annually on the anniversary date of this Contract, if applicable.

FORM C

BIDDER'S CERTIFICATION

The 1985 Texas Legislature passed HB 620 relating to bids by nonresident contractors. The pertinent portion of the Act has been extracted and is as follows:

Section 1. (a)

(2) "Nonresident bidder" means a bidder whose principal place of business is not in this state but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

(3) "Texas resident bidder" means a bidder whose principal place of business is in this state and includes a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Section 1. (b) The state or a governmental agency of the state may not award a contract for general construction, improvements, services, or public works projects or purchases of supplies, materials, or equipment to a nonresident bidder unless the nonresident's bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

I certify that _____ is a
(Company Name)

Resident Bidder of Texas as defined in HB 620.

Signature _____

Print Name _____

I certify that _____ is a
(Company Name)

Nonresident Bidder of Texas as defined in HB 620 and our principal place of business is:

_____
(City and State)

Signature _____

Print Name _____

FORM D

DEBARMENT OR SUSPENSION CERTIFICATION FORM

Non-Federal entities are prohibited from contracting with or making sub-awards under covered transaction to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement of goods or services equal to or in excess of $100,000. Contractors receiving individual awards of $100,000 or more and all sub-recipients must certify that the organization and its principals are not suspended or debarred.

By submitting this offer and signing this certificate, this bidder:

- Certifies that no suspension or debarment is in place, which would preclude receiving a federally funded contract under the Federal OMB, A-102, Common Rule (§_.36).

Vendor Name:_____

Vendor Address:_____

_____

_____

Vendor Telephone:_____

Authorized Company Official's Name:_____
(printed)

Signature of Company Official:_____

Date:_____

FORM E

DEVIATION/COMPLIANCE FORM

COMPANY NAME

ADDRESS CITY STATE

PHONE NUMBER FAX NUMBER

If the undersigned bidder intends to deviate from the General Conditions Standard Terms and Conditions or Item Specifications listed in this bid invitation, 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 bid award decisions, and the District reserves the right to accept or reject any bid based upon any deviations indicated below or in any attachments or inclusions.

In the absence of any deviation entry on this form, the bidder assures the District of their full compliance with the Standard Terms and Conditions, Item Specifications, and all other information contained in this Bid Invitation.

☐ No Deviation

☐ Yes Deviations

If yes is checked, please list below.

FORM F

NO BID NOTIFICATION

VENDOR NAME_____ AGENT'S NAME_____

ADDRESS_____ BID NUMBER_____

_____ DESCRIPTION_____

The San Angelo Independent School District is interested in receiving competitive pricing on all items bid. We also want to keep your firm as a bidder and supplier of materials and equipment. Therefore, it is important for us to determine why you are not bidding on this item. We will analyze your input carefully and try to determine if future changes are needed in our specifications and/or procedures.

I did not bid for the following reason: (PLEASE CHECK ONE OF THE LISTED REASONS)

_____ Do not supply the requested product

_____ Quantities offered are too small or too large to be supplied by my company.
(please circle one of the underlined)

_____ Specifications are "too tight" or written around a particular product.
(Please elaborate on this item)_____

_____

_____ I cannot bid against manufacturer or jobber on this item.
(please circle one of the underlined)

_____ Time frame for bidding was too short for my organization.

_____ Not awarded a contract by SAISD when you felt you were low bidder.

_____ Other_____

_____

Please indicate your choice for remaining on San Angelo ISD's bid list.

_____I wish to remain on bid list. _____I do not wish to remain on bid list.

_____
VENDOR'S SIGNATURE DATE

Certification Packet

_____

VENDOR NAME

In accordance with §200.326 of the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (sometimes referred to as the new "EDGAR"), this Addendum ("**Addendum**") is proof of the vendor's willingness and ability to comply with certain requirements which may be applicable to specific SAISD purchases using federal grant funds.

It amends and is hereby incorporated into an existing agreement between the parties as follows:

I. REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS – APPENDIX II TO 2 CFR PART 200

(A) Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to Federal Rule (A) above, when federal funds are expended by SAISD, SAISD reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does vendor agree? YES_____Initials of Authorized Representative of vendor

(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be affected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to Federal Rule (B) above, when federal funds are expended by SAISD, SAISD reserves the right to immediately terminate any agreement in excess of $10,000 resulting from this procurement process in the event of a breach or default of the agreement by Vendor, in the event vendor fails to: (1) meet schedules, deadlines, and/or delivery dates within the time specified in the procurement solicitation, contract, and/or a purchase order; (2) make any payments owed; or (3) otherwise perform in accordance with the contract and/or the procurement solicitation. SAISD also reserves the right to terminate the contract immediately, with written notice to vendor, for convenience, if SAISD believes, in its sole discretion that it is in the best interest of SAISD to do so. The vendor will be compensated for work performed and accepted and goods accepted by SAISD as of the termination date if the contract is terminated for convenience of SAISD. Any award under this procurement process is not exclusive and SAISD reserves the right to purchase goods and services from other vendors when it is in the best interest of SAISD.

Does vendor agree? YES_____Initials of Authorized Representative of vendor.

(C) *Equal Employment Opportunity*. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 601.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Pursuant to Federal Rule (C) above, when federal funds are expended by SAISD on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does vendor agree to abide by the above? YES_____ Initials of Authorized Representative of vendor

(D) *Davis-Bacon Act*, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 31413144, and 3146- 3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non- Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

Pursuant to Federal Rule (D) above, when federal funds are expended by SAISD, during the term of an award for all contracts and subgrants for construction or repair, the vendor will be in compliance with all applicable Davis-Bacon Act provisions.

Does vendor agree? YES _____ Initials of Authorized Representative of vendor

(E) *Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708).* Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Pursuant to Federal Rule (E) above, when federal funds are expended by SAISD, the vendor certifies that during the term of an award for all contracts by SAISD resulting from this procurement process, the vendor will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act.

Does vendor agree? YES_____Initials of Authorized Representative of vendor

(F) *Rights to Inventions* Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to Federal Rule (F) above, when federal funds are expended by SAISD, the vendor certifies that during the term of an award for all contracts by SAISD resulting from this procurement process, the vendor agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.

Does vendor agree? YES_____Initials of Authorized Representative of vendor

(G) *Clean Air Act (42 U.S.C. 7401-7671q.)* and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

Pursuant to Federal Rule (G) above, when federal funds are expended by SAISD, the vendor certifies that during the term of an award for all contracts by SAISD resulting from this procurement process, the vendor agrees to comply with all applicable requirements as referenced in Federal Rule (G) above.

Does vendor agree? YES _____Initials of Authorized Representative of vendor

(H) *Debarment and Suspension (Executive Orders 12549 and 12689)*—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Federal Rule (H) above, when federal funds are expended by SAISD, the vendor certifies that during the term of an award for all contracts by SAISD resulting from this procurement process, the vendor certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency.

Does vendor agree? YES _____Initials of Authorized Representative of vendor

(I) *Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)*—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non- Federal award.

Pursuant to Federal Rule (I) above, when federal funds are expended by SAISD, the vendor certifies that during the term and after the awarded term of an award for all contracts by SAISD resulting from this procurement process, the vendor certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that:

(1) No Federal appropriated funds have been paid or will be paid for on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a 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, an officer or employee of congress, or an employee of a Member of Congress in connection with this Federal grant 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 covered sub-awards exceeding $100,000 in Federal funds at all appropriate tiers and that all subrecipients shall certify and disclose accordingly.

Does vendor agree? YES_____Initials of Authorized Representative of vendor

RECORD RETENTION REQUIREMENTS FOR CONTRACTS PAID FOR WITH FEDERAL FUNDS – 2 CFR § 200.333

When federal funds are expended by SAISD for any contract resulting from this procurement process, the vendor certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The vendor further certifies that vendor will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does vendor agree? YES_____ Initials of Authorized Representative of vendor

CERTIFICATION OF NON-COLLUSION STATEMENT

Vendor certifies under penalty of perjury that its response to this procurement solicitation is in all respects bona fide, fair, and made without collusion or fraud with any person, joint venture, partnership, corporation or other business or legal entity.

Does vendor agree? YES _____ Initials of Authorized Representative of vendor

CERTIFICATION REGARDING BOYCOTTING CERTAIN ENERGY COMPANIES

If (a) company is not a sole proprietorship; (b) company has ten (10) or more full-time employees; and (c) this contract has a value of $100,000 or more that is to be paid wholly or partly from public funds, the following certification shall apply; otherwise, this certification is not required. Pursuant to TEX. GOV'T CODE Ch. 2274 of SB 13 (87th session), the company hereby certifies and verifies that the company, or any wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of these entities or business associations, if any, does not boycott energy companies and will not boycott energy companies during the term of the contract. For purposes of this contract, the term "company" shall mean an organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, that exists to make a profit. The term "boycott energy company" shall mean "without an ordinary business purpose, refusing to deal with, terminating business activities with, or otherwise taking any action intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company (a) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law, or (b) does business with a company described by paragraph (a)." *See* TEX. GOV'T CODE § 809.001(1).

Does vendor agree? YES_____Initials of Authorized Representative of vendor

CERTIFICATION PROHIBITING DISCRIMINATION AGAINST FIREARM AND AMMUNITION INDUSTRIES

If (a) company is not a sole proprietorship; (b) company has at least ten (10) full-time employees; (c) this contract has a value of at least $100,000 that is paid wholly or partly from public funds; (d) the contract is not excepted under TEX. GOV'T CODE § 2274.003 of SB 19 (87th leg.); and (e) governmental entity has determined that company is not a sole-source provider or governmental entity has not received any bids from a company that is able to provide this written verification, the following certification shall apply; otherwise, this certification is not required. Pursuant to TEX. GOV'T CODE Ch. 2274 of SB 19 (87th session), the company hereby certifies and verifies that the company, or association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary parent company, or affiliate of these entities or associations, that exists to make a profit, 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 this contract against a firearm entity or firearm trade association. For purposes of this contract, "discriminate against a firearm entity or firearm trade association" shall mean, with respect to the entity or association, to: "(1) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; (2) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or (3) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association. *See* TEX. GOV'T CODE § 2274.001(3) of SB 19. "Discrimination against a firearm entity or firearm trade association" does not include: "(1) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; and (2) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency, or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity's or association's status as a firearm entity or firearm trade association." *See* TEX. GOV'T CODE § 2274.001(3) of SB 19.

Does vendor agree? YES _____ Initials of Authorized Representative of vendor

---

CERTIFICATION REGARDING CERTAIN FOREIGN-OWNED COMPANIES IN CONNECTION WITH CRITICAL INFRASTRUCTURE

Vendor is prohibited from entering into a contract or other agreement relating to critical infrastructure that would grant to the company direct or remote access to or control of critical infrastructure in this state, excluding access specifically allowed by the *vendor* for product warranty and support purposes. Company, certifies that neither it nor its parent company nor any affiliate of company or its parent company, is (1) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or a designated country; (2) a company or other entity, including governmental entity, that is owned or controlled by citizens of or is directly controlled by the government of China, Iran, North Korea, Russia, or a designated country; or (3) headquartered in China, Iran, North Korea, Russia, or a designated country. For purposes of this contract, "critical infrastructure" means "a communication infrastructure system, cybersecurity system, electric grid, hazardous waste treatment system, or water treatment facility." *See* TEX. GOV'T CODE § 2274.0101(2) of SB 1226 (87th leg.). The company verifies and certifies that company will not grant direct or remote access to or control of critical infrastructure, except for product warranty and support purposes, to prohibited individuals, companies, or entities, including governmental entities, owned, controlled, or headquartered in China, Iran, North Korea, Russia, or a designated country, as determined by the Governor.

Does vendor agree? YES_____Initials of Authorized Representative of vendor

San Angelo Independent School District

Purchasing Department

Vendor agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that vendor certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Vendor's Name/Company Name:_____

Address, City, State, and Zip Code:_____

Phone Number:_____ Fax Number: _____

Printed Name of Authorized Representative: _____

Title of Authorized Representative: _____ _

Email_____

Address: _____

Signature of Authorized Representative: _____

Date: _____

FORMS CHECKLIST

_____ Completed – Form A - Non-Collusion Statement, 1 Page

_____ Completed – Form B - Felony Conviction Notice, 1 Page

_____ Completed – Form C - Bidders Certification, 1 Page

_____ Completed – Form D - Debarment and Suspension Certification, 1 Page

_____ Completed – Form E - Deviation/Compliance, 1 Page

_____ Complete if Applicable - Form F - No Bid Notification, 1 Page

_____ Completed – Certification Packet, 6 pages

_____ Completed – W-9 – Request for Taxpayer Identification Number

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

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

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See ***Specific Instructions*** on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

2 Business name/disregarded entity name, if different from above.

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor ☐ C corporation ☐ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any)

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

5 Address (number, street, and apt. or suite no.). See instructions.

Requester's name and address (optional)

6 City, state, and ZIP code

7 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 line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

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

Social security number

			–			–				

or

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

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

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

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

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

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

must obtain your correct taxpayer identification number (TIN), which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid).
- Form 1099-DIV (dividends, including those from stocks or mutual funds).
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds).
- Form 1099-NEC (nonemployee compensation).
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers).
- Form 1099-S (proceeds from real estate transactions).
- Form 1099-K (merchant card and third-party network transactions).
- Form 1098 (home mortgage interest), 1098-E (student loan interest), and 1098-T (tuition).
- Form 1099-C (canceled debt).
- Form 1099-A (acquisition or abandonment of secured property).

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

Caution: If you don't return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding*, later.

By signing the filled-out form, you:

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

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

3. Claim exemption from backup withholding if you are a U.S. exempt payee; and

4. Certify to your non-foreign status for purposes of withholding under chapter 3 or 4 of the Code (if applicable); and

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

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

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

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Establishing U.S. status for purposes of chapter 3 and chapter 4 withholding. Payments made to foreign persons, including certain distributions, allocations of income, or transfers of sales proceeds, may be subject to withholding under chapter 3 or chapter 4 of the Code (sections 1441–1474). Under those rules, if a Form W-9 or other certification of non-foreign status has not been received, a withholding agent, transferee, or partnership (payor) generally applies presumption rules that may require the payor to withhold applicable tax from the recipient, owner, transferor, or partner (payee). See Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities.

The following persons must provide Form W-9 to the payor for purposes of establishing its non-foreign status.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the disregarded entity.
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the grantor trust.
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust and not the beneficiaries of the trust.

See Pub. 515 for more information on providing a Form W-9 or a certification of non-foreign status to avoid withholding.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person (under Regulations section 1.1441-1(b)(2)(iv) or other applicable section for chapter 3 or 4 purposes), do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515). If you are a qualified foreign pension fund under Regulations section 1.897(l)-1(d), or a partnership that is wholly owned by qualified foreign pension funds, that is treated as a non-foreign person for purposes of section 1445 withholding, do not use Form W-9. Instead, use Form W-8EXP (or other certification of non-foreign status).

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

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

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

2. The treaty article addressing the income.

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

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

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

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

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

Backup Withholding

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

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

Payments you receive will be subject to backup withholding if:

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

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

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

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

5. You do not certify to the requester that you are not subject to backup withholding, as described in item 4 under "*By signing the filled-out form*" above (for reportable interest and dividend accounts opened after 1983 only).

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

See also *Establishing U.S. status for purposes of chapter 3 and chapter 4 withholding*, earlier.

What Is FATCA Reporting?

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

Updating Your Information

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

Penalties

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

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

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

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

Specific Instructions

Line 1

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

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

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

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

• **Sole proprietor.** Enter your individual name as shown on your Form 1040 on line 1. Enter your business, trade, or "doing business as" (DBA) name on line 2.

• **Partnership, C corporation, S corporation, or LLC, other than a disregarded entity.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

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

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

Line 2

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

Line 3a

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

IF the entity/individual on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation.
• Individual or • Sole proprietorship	Individual/sole proprietor.
• LLC classified as a partnership for U.S. federal tax purposes or • LLC that has filed Form 8832 or 2553 electing to be taxed as a corporation	Limited liability company and enter the appropriate tax classification: P = Partnership, C = C corporation, or S = S corporation.
• Partnership	Partnership.
• Trust/estate	Trust/estate.

Line 3b

Check this box if you are a partnership (including an LLC classified as a partnership for U.S. federal tax purposes), trust, or estate that has any foreign partners, owners, or beneficiaries, and you are providing this form to a partnership, trust, or estate, in which you have an ownership interest. You must check the box on line 3b if you receive a Form W-8 (or documentary evidence) from any partner, owner, or beneficiary establishing foreign status or if you receive a Form W-9 from any partner, owner, or beneficiary that has checked the box on line 3b.

Note: A partnership that provides a Form W-9 and checks box 3b may be required to complete Schedules K-2 and K-3 (Form 1065). For more information, see the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

If you are required to complete line 3b but fail to do so, you may not receive the information necessary to file a correct information return with the IRS or furnish a correct payee statement to your partners or beneficiaries. See, for example, sections 6698, 6722, and 6724 for penalties that may apply.

Line 4 Exemptions

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

Exempt payee code.

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

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

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

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

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

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

2—The United States or any of its agencies or instrumentalities.

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

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

5—A corporation.

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

7—A futures commission merchant registered with the Commodity Futures Trading Commission.

8—A real estate investment trust.

9—An entity registered at all times during the tax year under the Investment Company Act of 1940.

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

11—A financial institution as defined under section 581.

12—A middleman known in the investment community as a nominee or custodian.

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

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

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

[1] See Form 1099-MISC, Miscellaneous Information, and its instructions.

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

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

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

B—The United States or any of its agencies or instrumentalities.

C—A state, the District of Columbia, a U.S. commonwealth or territory, or any of their political subdivisions or instrumentalities.

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

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

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

G—A real estate investment trust.

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

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

J—A bank as defined in section 581.

K—A broker.

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

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

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

Line 5

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

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have, and are not eligible to get, an SSN, your TIN is your IRS ITIN. Enter it in the entry space for the Social security number. If you do not have an ITIN, see *How to get a TIN* below.

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

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). If the LLC is classified as a corporation or partnership, enter the entity's EIN.

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

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov*. You may also get this form by calling 800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/EIN*. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or Form SS-4 mailed to you within 15 business days.

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

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon. See also *Establishing U.S. status for purposes of chapter 3 and chapter 4 withholding*, earlier, for when you may instead be subject to withholding under chapter 3 or 4 of the Code.

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

Part II. Certification

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

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

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

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

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

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

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

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

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor[2]
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee[1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner[1]
6. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
7. Grantor trust filing under Optional Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))**	The grantor*
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity[4]
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing Form 1041 or under the Optional Filing Method 2, requiring Form 1099 (see Regulations section 1.671-4(b)(2)(i)(B))**	The trust

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

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name on line 1, and enter your business or DBA name, if any, on line 2. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

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

** For more information on optional filing methods for grantor trusts, see the Instructions for Form 1041.

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

Secure Your Tax Records From Identity Theft

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

To reduce your risk:

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

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

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

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

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

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

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

Go to *www.irs.gov/IdentityTheft* to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

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