

Addendum No. 02

July 10, 2026



Parlier HS Stadium Replacement

OWNER: Parlier Unified School District
900 South Newmark Ave, Parlier, CA 93648-2034

PREPARED BY: PBK Architects, Inc.
7790 N. Palm Avenue
Fresno, California 93711

PBK PROJECT NO.: 250093
DSA FILE NO.: 10-H12
DSA APPLICATION NO.: 02-124002 _ PARLIER HS STADIUM REPLACEMENT

NOTICE TO BIDDERS

- A. Receipt of this Addendum shall be acknowledged on the Proposal Form.
- B. This Addendum forms part of the Contract Documents for the above referenced project and shall be incorporated integrally therewith.
- C. Each proposer shall make necessary adjustments and submit their proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the following supplemental data differ from those of the original Contract Documents, this Addendum shall govern.

CONTRACT & BIDDING REQUIREMENTS

(FRONT END DOCUMENTS AND GENERAL CONDITIONS):

AD2-CBR01: Refer to note #2 issued under Addendum No. 01 and revise the following information as follows:
1. **Note:** Engineer's Construction Cost Estimate: ~~\$18,500,000.00~~ (\$14,000,000.00)"

AD2-CBR02: Refer to "BID FORM" issued under Addendum No. 01:
1. Remove and replace "BID FORM" with herein attached "BID FORM" identified with an "AD2" on the upper right hand corner (5 pages)

SPECIFICATIONS

AD2-SP01 Refer to Bid Package 02-124002_SPC_Specifications Manual

- 1. Add Specification Section 01 21 00 – ALLOWANCES
 - a. Add the attached Specification Section 01 21 00 – "ALLOWANCES" identified with an AD2 on the upper right-hand corner to the project manual (total of 2 sheets).
- 2. Delete Specification Section 01 11 00.01 – PLAYING FIELD SUMMARY OF WORK
 - a. Delete section 01 11 00.01 "PLAYING FIELD SUMMARY OF WORK" from the project. This section does not apply to the project.
- 3. Refer to Specification Section 01 23 00 – ALTERNATES
 - a. Refer to Part 3, Article 3.3, and delete Paragraph A "DEDUCTIVE ALTERNATE NO. 01: VISITOR BLEACHERS". This is no longer applicable to the project.

Parlier HS Stadium Replacement

4. Refer to Specification Section 01 64 00 – OWNER-FURNISHED PRODUCTS
 - a. Refer to Part 3, Article 3.3, and add paragraph A-11 as shown below:

“ 11. PERMANENT GRANDSTAND:
 - a. HOME BLEACHERS AND PRESSBOX OFOI
 - b. VISITOR BLEACHERS OFOI”
5. Refer to Specification Section 11 68 00 – PLAYING FIELD EQUIPMENT AND MATERIAL
 - a. Replace Specification Section 11 68 00 – “PLAYING FIELD EQUIPMENT AND MATERIAL” with herein attached Specification Section 11 68 00 – “PLAYING FIELD EQUIPMENT AND MATERIAL” with an AD2 on the upper right-hand corner (total of 5 sheets).
6. Refer to Specification Section 32 25 42 – SYNTHETIC TURF PLAYING FIELD SYSTEM
 - a. Replace Specification Section 32 25 42 – “SYNTHETIC TURF PLAYING FIELD SYSTEM” with herein attached Specification Section 32 25 42 – “SYNTHETIC TURF PLAYING FIELD SYSTEM” with an AD2 on the upper right-hand corner (total of 26 sheets).
7. Refer to Specification Section 33 46 00.1 – PLAYING FIELD SUB-DRAINAGE SYSTEM
 - a. Replace Specification Section 33 46 00.1 – “PLAYING FIELD SUB-DRAINAGE SYSTEM” with herein attached Specification Section 33 46 00.1 – “PLAYING FIELD SUB-DRAINAGE SYSTEM” with an AD2 on the upper right-hand corner (total of 6 sheets).
8. Refer to Specification Section 33 47 00 – SYNTHETIC TRACK SURFACING
 - a. Replace Specification Section 33 47 00 – “SYNTHETIC TRACK SURFACING” with herein attached Specification Section 33 47 00 – “SYNTHETIC TRACK SURFACING” with an AD2 on the upper right-hand corner (total of 4 sheets).

DRAWINGS

ARCHITECTURAL:

AD2-C01: Refer to Bid Package 02-124002_DWG_Drawings:

1. Omit all verbiage pertaining to “Deduct Alternate No.01: Visitor Bleachers”. This is no longer applicable to the project.

END OF ADDENDUM NO. 02

BID FORM**PARLIER UNIFIED SCHOOL DISTRICT, DISTRICT OFFICE**

900 NEWMARK AVENUE
PARLIER, CALIFORNIA 93648

Dear Board Members:

The undersigned, doing business under the firm name of _____,
hereby proposes and agrees to enter into a contract, with the Parlier Unified School
District ("Owner"), to furnish any and all labor, materials, applicable taxes, equipment
and services for the completion of Work as described hereinafter and in the Contract
Documents as

**PHS Stadium Replacement Project
Parlier, CA 93648**

prepared by:
PBK Architects
7790 N Palm Ave.
Fresno, CA 93711
Phone: (559) 448-8400

Bid Amount (Base Bid):

The undersigned proposes to furnish such labor, materials, applicable taxes, equipment
and services for the amount of _____ Dollars
(\$_____).

This amount includes all allowances identified in the Agreement form, including but not
limited to two-hundred thousand Dollars (\$200,000.00) for general contingency
allowance.

Alternate Bid Scopes:

In addition to the above base bid, the undersigned bidder proposes and agrees to perform
the Contract with the following alternate scope(s) of work for the listed price
adjustment(s) if the Owner elects to include one or more of them in the Contract at the
time of award:

~~ALTERNATE ITEM NO. 1: DEDUCTIVE ALTERNATE NO. 1: VISITOR BLEACHERS~~ for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 2: DEDUCTIVE ALTERNATE NO. 2: SCOREBOARD for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 3: DEDUCTIVE ALTERNATE NO. 3: TEAM ROOM AND STORAGE / LAUNDRY ROOM for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 4: DEDUCTIVE ALTERNATE NO. 4: THREE NEW FLAGPOLES for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 5: DEDUCTIVE ALTERNATE NO. 5: CMU FENCE ENCLOSURE NORTH OF BUILDING 'L' WELDING SHOP, INCLUDING CMU FENCE, GATES, AND ALL RELATED ITEMS for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 6: DEDUCTIVE ALTERNATE NO. 6: AC PAVING AND CONCRETE IN AND AROUND CMU ENCLOSURE NORTH OF BUILDING 'L' SHOP AND FIRE ACCESS ROAD WIDENING for the *credit* of _____ Dollars (\$_____).

ALTERNATE ITEM NO. 7: DEDUCTIVE ALTERNATE NO. 7: DISCUS THROW EVENT FIELD PROTECTIVE NETTING / FENCE for the *credit* of _____ Dollars (\$_____).

Miscellaneous:

The Contract, as awarded, includes the base scope of work. The low bid shall be determined based on the Base Bid amount including all scopes of work, without accepting any deductive alternates.

The undersigned shall, within ten (10) days after the date of such mailing, faxing, or delivering of a Notice of Award or prior to the commencement of the Work, whichever is earlier, execute and deliver an agreement in the form of agreement present in these Contract Documents and give Performance and Payment Bonds in accordance with the Instructions to Bidders.

The undersigned declares that it has read and understands the Contract Documents, including but not limited to the Notice to Bidders, the Instructions to Bidders, the Agreement, the General Conditions, the Drawings, the Specifications, and any Special Conditions.

The undersigned hereby designates as the office to which such Notice of Award of Contract may be mailed, faxed, or delivered:

Our Public Liability and Property Damage Insurance is placed with:

Our Workers' Compensation Insurance is placed with:

Circular letters, bulletins, addenda, etc., bound with the specifications or issued during the time of bidding are included in the bid, and, in Completing the Contract, they are to become a part thereof.

The receipt of the following addenda to the specifications is acknowledged:

Addendum No. _____	Date _____	Addendum No. _____	Date _____
Addendum No. _____	Date _____	Addendum No. _____	Date _____
Addendum No. _____	Date _____	Addendum No. _____	Date _____

This bid may be withdrawn in writing at any time prior to the scheduled time for the opening of bids, including any authorized postponement thereof.

A bidder shall not submit this bid form unless the bidder's California contractor's license number appears clearly on it, the license expiration date and class are stated, and the bid form contains a statement that the representations made therein are made under penalty of perjury. Any bid submitted by a contractor who is not licensed pursuant to Business and Professions Code section 7028.15 shall be considered nonresponsive and shall be rejected. Any bid not containing the above information may be considered nonresponsive and may be rejected.

Proof of Bidder's registration per Labor Code §1725.5 must be submitted with this bid form.

NOTE: This bid form must give the full business address of the bidder and be signed by bidder with bidder's usual signature. Partnerships must furnish the full name of all partners and must be signed in the partnership name by a general partner with authority to bind the partnership in such matters, followed by the signature and designation of the person signing. The name of the person signing shall also be typed or printed below the signature. Corporations must sign with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the chairman of the board, president or any vice president, and then

followed by a second signature by the secretary, assistant secretary, the chief financial officer or assistant treasurer. All persons signing must be authorized to bind the corporation in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officers signing on behalf of a corporation shall be furnished with the bid.

The undersigned declares under penalty of perjury under the laws of the State of California that the representations made in this bid are true and correct.

Name of Company as Licensed in California: _____

Business Address: _____

Telephone Number: _____

California Contractor License No.: _____

Class and Expiration Date: _____

Public Works Contractor Registration No.: _____

State of Incorporation, if Applicable: _____

INDIVIDUAL:

(Name)

Dated: _____, 20__

PARTNERSHIP:

Evidence of authority to bind partnership is attached.

(Name)
General Partner

Dated: _____, 20__

CORPORATION:

Evidence of authority to bind corporation is attached.

Dated: _____, 20__

_____ (Chairman, Pres., or Vice-Pres.)

_____ Dated: _____, 20____
 _____ (Name)
 _____ (Secretary, Asst. Secretary, CFO, or Asst. Treasurer)

SECTION 01 21 00 ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.

1.3 DEFINITIONS

- A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to perform services or defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order (CO).

1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products, systems, or services included in allowances, in the form specified.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 ALLOWANCES

- A. Use allowance only as directed by District for District's purposes and only by APRs that indicate amounts to be charged to the allowance.
- B. Allowance includes cost of materials, equipment, delivery, receiving, handling, labor, installation, warranty, and insurance. Contractor's supervision, overhead, profit and bond costs to be determined at time of use.

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Parlier Unified School District

- C. At Project closeout, credit unused amounts remaining in the allowance to District by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: General Contingency Allowance - **\$ 200,000.00.**
- B. Allowance No. 2: Landscape Planting Bid Allowance - **\$3,000.00.**

END OF SECTION 01 21 00

SECTION 11 68 00-PLAYING FIELD EQUIPMENT AND MATERIALS

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall furnish all the necessary skilled labor, materials, apparatus, tools, equipment, transportation, temporary construction, shop drawings, and special or occasional services as required to install all sports equipment and materials.
- B. Playing Field and Field Event Programming Design Standards:
 - 1. The playing field, field events, and running track shall conform with the latest version of the National Federation of High Schools (NFHS) guidelines.
- C. Synthetic Turf Athletic Playing Field, Field Events, and Running Track:
 - 1. Multi-Use Athletic Playing Field: The multi-use synthetic turf athletic playing field renovation have been designed to accommodate American Tackle Football, Soccer, and field events use. Please refer to the contract documents for actual athletic field programming requirements. The entire multiuse playing field will be synthetic turf with colored inlaid field markings.
- D. Field Venus + Events:
 - 1. The Contractor shall be responsible for the installation of all the necessary materials for the current field events shown on design documents. All construction shall be in accordance with most current NFHS guidelines. The pricing shall include all the stadium field event runways, pole vault, triple/long jump, high jump area, and all concrete runways, and high jump area shall have rubberized track surfacing applied. The current program also includes throwing events for hammer throw, protective throwing cage, discus, and shotput. These events outside the stadium playing field shall be priced as part of this scope of work.

1.2 SUBMITTALS

- A. The following information shall be submitted before the installation of the specified work.
 - 1. Standard print specifications and diagrams or shop drawings depicting installation directions and dimensions for in-ground sports equipment.
 - 2. Material safety data sheets on products, as necessary.
 - 3. Manufacture Product shop drawing data sheets.

1.3 QUALITY ASSURANCE

- A. The Contractor shall only accept bids from those vendors or manufacturers that have been pre-approved or identified as approved equal.

PART 2 – PRODUCTS

2.1 IN-GROUND STADIUM FIELD EVENT EQUIPMENT

- A. The Contractor is fully responsible for all the cost and installation of all permanent, in-ground field event equipment as specified by these specifications and as shown on the project contact design documents.
 - 1. Pole Vault Boxes and Concrete Pole Vault Bar Slabs: (NFHS)
 - a. Pole vault planting boxes & covers plugs. Supplied by Sportsfield Specialties, Inc.

COMPONENTS:

PVBCAW - White Cast Aluminum Pole Vault Box:

- 1. Cast Aluminum Construction
- 2. White Super Durable Powder Coated Finish

PLAYING FIELD EQUIPMENT AND MATERIAL

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3. 30° Reverse Bend at Pole Vault Box Entryway
 - i. 7-7/8" (0.2m) Long
 4. Rounded Upper Edges
 5. Concrete Set Wings to Reduce Floating During Installation
 6. Meets or Exceeds NFHS, NCAA, and IAAF Rules and Regulations for Size and Shape
2. Adjustable High Jump Standards: (NFHS)
- a. HJS0208 - 2'-8' High Jump Standards Set Supplied by Sportsfield Specialties, Inc.

COMPONENTS:

1. (2) Steel Base Assemblies: Each Fabricated of 7-Gauge Steel Sheet
 - a. Each Contains (4) Leveling Feet for Adjustment
 2. (2) Mounting Stubs: Each Fabricated of 7-Gauge Steel Sheet
 - a. Mounts Upright to Base Assembly
 3. (2) Uprights: Each Fabricated of a Custom Aluminum Extrusion
 - a. Height: 53.50"
 - b. Contains Metric and English Scales
 4. (2) Riser Assemblies: Each Fabricated of (1) 1.50" Square Aluminum Tube with (2) Welded 3/8" x 3/4" Crossbar Rest Mounting Blocks and (1) Welded 1/4" x 1" Clamping Knob Mounting Block
 - a. Travels Inside of Uprights to Raise and Lower Crossbar Rests
 5. (4) Crossbar Rests: Each Fabricated of 0.125" Aluminum Sheet
 6. Super Durable Powder Coated Finish: Black, Red and Silver Standard or Custom Available Upon Request.
 7. Installation Package Consisting of the Following Components:
 - a. Hardware Kit
 - b. Installation Instructions
3. Take-Off Boards: (NFHS)
- LTJTOB8 - 8' Long and Triple Jump Take-Off Board System Supplied by Sportsfield Specialties, Inc. Refer to the playing field layout plan for the number of take-off boards required.

COMPONENTS:

LTJTOB8 - 8' Long and Triple Jump Take-Off Board System:

- a. White Synthetic Polyboard with Textured Surface
 - i. Dimensions: 8" x 48" x 3/4" (0.75")
 - ii. Grooved Edges for Slide-on Assembly, No Exposed Fastening Hardware
 - b. Extruded Aluminum Insert/Spacer
 - i. 0.120" Wall Thickness
 - ii. Designed to Accommodate Slide-on Board Assembly
 - iii. 1/2" (0.5") Recess to Accept Synthetic Track Material by Others
 - c. 16 Gauge (0.60") 304 Stainless Steel Tray
- Includes 1" PVC Drain Stub (Oriented at Either End) to Ensure Positive Connection to Subsurface Drainage System by Others

2.1 IN-GROUND FOOTBALL EQUIPMENT

- A. The Contractor is responsible for the cost of providing and installation of all permanent, in-ground goalposts as specified by these specifications and as shown in the project contact documents design.

1. Field Goal Posts:

COMPONENTS:

PLAYING FIELD EQUIPMENT AND MATERIAL

- a. Goal Post Model: Adjustright® Football Goal Posts, 8' gooseneck, High School Adjustable: By Sportsfield Specialties, Inc. or approved equivalent manufacturer.
- b. Powder Coat Finish: Color as approved by the School District: Blue
- c. Adjustable High School/College Base Plate Mount Football Goal Post
- d. Access Frame Kit: model by Sportsfield Specialties Inc.
- e. Install turf cover per manufacturer recommendations.
- f. Round Goal Post Protective Padding: Color to be approved by the School District.

2. Field Goal Post Foundations:

- a. The Contractor shall be fully responsible for all costs associated with the structural engineering design, local building permitting, and installation for the proposed field goal post foundations.

3. Football Game Clocks:

COMPONENTS:

- a. (2 EA) Electro-Mech Scoreboard Company or equivalent manufacturer.
- b. 4'x'4' (2 EA) game clocks, mounting system, and protective padding. The Contractor shall be fully responsible for all costs associated with the structural engineering design, local building permitting, and installation for the proposed football game clocks post foundations. Protective padding color to be approved by the School District.
- c. MP-Series Scoreboard Control Console: Electro-Mech or approved equivalent manufacturer. Final control console to be approved by the School District.
- d. Football Delay of Game Clock Mounting System: (2 EA)
Model: GPDOGCMS By Sportsfield Specialties, Inc. or approved equivalent manufacturer.

2.2 SOCCER GOAL EQUIPMENT

- A. The Contractor is responsible for the cost of providing and assembling both soccer goals. As reflected in these specifications.

- a. SG824RE 8' x 24' Regulation Size Portable European Round Post Soccer Goals and Accessories - 8'H x 24'L x 3'B x 8'D Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.

COMPONENTS:

1. Crossbar, Uprights, and Rear Ground Bar Fabricated of 6061 T6 Aluminum Pipe, 3.5" Schedule 40 Round (4" O.D.), Having the Following Attributes:
 - a. Inside Width: 24'
 - b. Inside Height: 8'
 - c. Super Durable Powder Coated White Finish with Enhanced Resistance to UV and Fade
 - d. Welded Aluminum Net Clips, Guaranteed for Life
2. Rear Net Stays Fabricated of 1" Schedule 40 Aluminum Pipe (1.315" O.D.), Having the Following Attributes:
 - a. Length: 3'
 - b. Super Durable Powder Coated Black Finish with Enhanced Resistance to UV and Fade

PLAYING FIELD EQUIPMENT AND MATERIAL

3. Additional:

- a. Removeable SGWKL4 Levered External Wheel Kit
- b. 5mm Braided, Knotless White High Tenacity Polypropylene Soccer Net with Rope Bound Perimeter and 4" Square Mesh – 8'H x 24'L x 3'B x 8'D
- c. Model Specific Hardware Kit and Installation Instructions
- d. Five (5) Year Limited Manufacturer's Product Warranty

2.4 IN-GROUND THROWING EVENT EQUIPMENT

- A. The Contractor responsible for the submission of the following shop drawings, all labor and costs for providing and the installation of all permanent, in-ground field events, throwing cage, and concrete flat work as specified by these specifications and as shown on the project contact design documents.

1. Hammer Throwing Cage / Shot Put / Discus Systems: (NFHS)

COMPONENTS:

- a. DCHS (TFDCHS) High School Discus Cage with Backup Net System (1 EA): Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.
- b. V366 Shot Put Aluminum Circle with Cross Bracing (2 EA) Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.
- c. SPTBCARHS - High School Shot Put Toe Board Recessed Concrete Pad Installation (2 EA) Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.
- d. V367 Discus / Hammer Aluminum Circle with Cross Bracing (1 EA) Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.
- e. High School Discus Ground Sleeve Layout Plan: Provided by Sportsfield Specialties, Inc. or equivalent manufacturer.
- f. The Contractor shall refer to the playing field construction documents for size and locations of these field events. The Contractor is fully responsible for all concrete foundations, slabs, and obtaining all local building department permits, inspections, and permit fees.

PART 3 – EXECUTION

3.1 INSTALLATION OF EQUIPMENT AND MATERIALS

- A. The Contractor shall install all in-ground sports equipment in accordance with the product manufacturer and/or vendor's recommendations for synthetic turf applications.
- B. Shop drawings and testing data must be submitted and approved by the Architect and School District before ordering and installation of any in-ground equipment and specialty soccer, field events, and football product materials.
- C. The Contractor is responsible for providing the signed and sealed shop drawings prepared by a licensed State of California professional structural engineer for the field goal posts, game clocks, and field event foundations and obtaining all local building department permits, inspections, and permit fees.

3.2 GUARANTEE AND WARRANTY

- A. All work and products shall have a one-year workmanship and specified product

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warranty from the date of issuance of final substantial compliance by the project
Architect.

END OF SECTION- 11 68 00

SECTION 32 25 42 - SYNTHETIC TURF PLAYING FIELD SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Playing Field Contractor's attention is specifically directed, but not limited to the following documents and specifications for additional requirements:
 - 1. Geotechnical Engineering Report.
 - 2. Topographic Survey.
 - 3. Playing Field Plans and Construction Details.
 - 4. Civil Engineering Plans and Construction Details.
 - 5. MEP Plans and Construction Details
 - 6. All Written Specification Sections.

1.2 SUBMITTALS REQUIRED BY THE PLAYING FIELD CONTRACTOR

- A. The Synthetic Turf Manufacturer and General Contractor Qualification Requirements: At the time of formal bid submission, the Synthetic Turf Manufacturer or Contractor must provide a copy of proof that the corporation is currently a State of California General Contractor. Failure to provide this proof of license will result in the bidder submission package being non-responsive. The Parlier Unified School District retains the legal right to approve or reject any bidder's submission that fails to provide or meet the following minimum requirements.
- B. All bidders must provide a minimum of ten (10) similar Professional, NCAA, and high schools synthetic turf projects located in the State of California. All similar projects must have also been completed within the last five (5) years that are similar in scope and size.
 - 1. The ten (10) similar projects submitted must include the following minimum information:
 - a. Name of the project.
 - b. Location and description of the project.
 - c. The overall original playing field budget, completion date, and if the project was constructed within the original playing field budget and schedule.
 - d. Contact name, title, phone number, Team, University, High School, City, or County responsible for overseeing the work performed.

All bidders are encouraged to update the contact names and phone numbers before bid submission.

- 2. All bidders must provide five (5) successful similar projects in the State of California (Only) that are utilizing the same proposed synthetic turf system profile utilizing a turf between 2.0" – 2.50" in pile height, total pile weight, and all infill mix products. All successful projects submitted must include the following minimum information:
 - a. Name of the project.
 - b. Location and description of the project.
 - c. The overall original playing field budget, completion date, and if the project was constructed within the original playing field budget and schedule.
 - d. Contact name, title, phone number, Team, University, High School, City, or County responsible for overseeing the work performed.

All bidders are encouraged to update the contact names and phone numbers before bid submission.

- C. All bidders and sub-contractors shall submit a written statement signed by a corporate officer; "stating that the corporation has NO present, past legal action or pending arbitration or litigation against the corporation over the past ten (10) years as a direct result of product manufacturing failure, poor workmanship, unresolved warranty issues, failure to meet owners expectations, non-payment to any sub-contractors and has been terminated based on failure to meet the project schedule". If any of the above conditions have occurred, a written letter of explanation shall be required to be submitted for review by the Parlier Unified School District.
- D. All bidders shall prepare an organization chart identifying all key staff member names, years of experience, direct roles and responsibilities, and contact cellphone numbers, and e-mail addresses. The organization chart must also list any subcontractors being utilized during any pre- or post-construction activities.
- E. The Playing Field Contractor at the time of formal bid submission shall submit the playing field contractor qualifications that meet the following minimum standards: Currently holds a valid certified playing field builder's certification from the American Sports Builders Association in both classifications as a CFB and CFB-S.
- F. The Parlier Unified School District Project Manager, Playing Field Designer, and Architect reserve the right to conduct field visits and contact the previous similar project references listed or not listed as part of this evaluation process.
- G. All bidders shall submit a preliminary master bar chart for all tasks associated with the construction of the stadium playing field, running track, and field events that list the types of work to be performed and the length of time for each task and key milestone dates.
- H. The Contractor shall not enter into any formal sub-contractor agreements without prior written approval by the Parlier Unified School District Project Manager.
- I. The Contractor shall submit the name of the synthetic turf manufacturer product, pile height, type of material, type of rubber, infill mix ratio, total pile weight, the total system installed weight, and a list of projects that this proposed synthetic turf manufacturer product and infill mix has been successfully installed over the last 5 years in the State of California.
- J. The following are the recommended synthetic turf manufacturer: The Contractor must submit the synthetic turf manufacturer "Product Fact Sheet" at the time of submission of bid for evaluation by the owner and design team. Listed in alphabetical order.
 - a. AstroTurf
Mr. Dominick Berarducci
T: (559) 612-9065
E: dominick.berarducci@astroturf.com
 - b. FieldTurf
Mr. Chris Wedge
T: (352) 242-7620
E: Chris.Wedge@fieldturf.com
 - c. Shaw Grass
Mr. Andrew Clifford
T: (813) 310-2246
E: Andrew.clifford@shawinc.com
 - d. TenCate Grass
Mr. Ryan Reid
T: (207) 294-2329
E: r.reid@tencategrass.com
- K. Typical Synthetic Turf Profile: Synthetic Turf Product: 2.0"- 2.50" pile height min. Synthetic Turf must be produced in the United States. No products from China or Spain will be approved for use as part of this project. Owner to approved final turf manufacturer.
- L. Infill Product Mix: Silica Sand, SBR, and cooling technology infill mix. One, Two-layer or three-layer mix.

- M. Subsurface Drainage/Shock/ pad with channel system is mandatory as part of the system profile.
- N. 8" X 12" perimeter concrete header curb, 4,000 p.s.i. min. for the attachment of the pressure treated wooden nailer board and the final synthetic turf product and infill mix. No Bend-A-Board shall be permitted. Unless approved by the Parlier Unified School District and the selected synthetic turf manufacturer.
- O. Perimeter perforated subsurface drainage collector piping system will be constructed approximately 8' inside the synthetic turf concrete curb header. Installed perimeter piping trenches shall be 2X times the pipe diameter or greater and installed at a slope of 0.50%.
- P. Filter fabric shall be installed over the entire compacted sub-grade and along all sides and bottoms of pipe trenching and secured behind the concrete perimeter header curb.
- Q. An ACO trench drainage system (non-sloped) has been designed between the running track and high jump area.
- R. The Parlier Unified School District desires to utilize "cooling technology" in the infill mix to reduce the overall synthetic turf surface temperature. The cooling technology must be a product that is not required to be water-activated. The use of cork, coconut husk, nutshell, or similar organics materials and floatable products in the infill mix are strictly prohibited for use in conjunction with this project. No water source is being provided as part of this project for activating the cooling technology.

1.3 WORK INCLUDED

- A. Provide all costs associated with the skilled labor; professional land surveying services, establish benchmarks, test results of proposed drainage gravel material, and finish topping stone aggregates. All required soil laboratory collection, and shipping cost and material laboratory material testing, specialized construction equipment, and all the necessary miscellaneous materials, means, and methods of construction for all the work necessary for the full construction of the entire synthetic turf playing field systems in a safe manner and in accordance with the final contract documents, details, permits, and project written specifications. Work shall include but is not limited to the following:
 - 1. Earthwork Requirements:
 - a) Laser grading.
 - b) Off-site disposal of excess soil, unsuitable materials, construction debris, and site vegetation materials in a legal manner.
 - c) Acceptance of Compacted Subgrade – The Playing Field Contractor must coordinate with LLB contractor, inspector and laboratory in charge to ensure the sub-grade elevation and compaction is per contract requirements.
 - d) Acceptance of Drainage Gravel Layer – The Playing Field Contractor must certify the drainage gravel aggregate layer elevation.
 - e) Acceptance of Finished Topping Stone Layer – The Playing Field Contractor must certify the finished topping stone aggregate layer elevation. Provide a letter to the Parlier Unified School District project manager and architect relating to the final surface planarity.
 - f) Acceptance of installed Synthetic Turf and Infill Mix – The Playing Field Contractor must certify the final surface grading elevation.
 - 2. Subsurface Drainage Collection System Requirements:
 - a) Approved Filter Fabric
 - b) Drainage/Shock Pad
 - c) Drainage Gravel Material Testing: Must submit 3rd party independent soil laboratory testing results and be approved by the Architect.
 - d) Perimeter drainage piping collection system As-built signed and sealed
 - e) Finished Topping Stone Material: Must submit 3rd party independent soil laboratory testing results and be approved by the Architect.
 - f) Installation of the filter fabric and/or structural fabric product in accordance with plans, specifications, or manufacturers' requirements. (If required)
 - g) Survey Grade elevation certification of finished drainage gravel and finished topping

- stone installation.
- h) Survey Final elevation certification of finished surface grading installation to include infill mix.
- 3. Playing Field Requirements:
 - a) Installation of perimeter turf anchor/nailer system.
 - b) Installation of Synthetic Turf including.
 - Installation of full synthetic turf
 - Inlaid field marking based on approved shop drawings.
 - Infill material mix ratio/percentage to the optimum depth required.
 - Refer to Section 11 68 00 – Athletic Field Equipment for additional athletic equipment.
- 4. Field Maintenance Equipment:
 - a) Synthetic Turf Maintenance Equipment (Purchased by the Playing Field Contractor)
 - b) Synthetic Turf Sweeper and Turf Brush per approved synthetic turf manufacturer awarded this contract. The Playing Field Contractor is fully responsible for all costs associated with field maintenance equipment.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - a) T 89 - Determining the Liquid Limit of Soils
 - b) T 90 - Determining the Plastic Limit and Plasticity Index of Soils
 - 2. Occupational Safety and Health Administration (OSHA)
 - 3. California Department of Transportation (Caltrans) Standard Specifications
 - 4. American Society for Testing and Materials (ASTM):
 - a) D 395 - Rubber Property – Compression Test
 - b) D 418 - Pile Yarn Floor Covering Construction
 - c) D 2256 - Breaking Load (Strength) and Elongation of Yarn by the Single-Strand Method
 - d) D 3776 - Mass Per Unit Area (Weight) of Woven Fabric
 - e) D 3786 - Hydraulic Bursting Strength of Knitted Goods and Non-Woven Fabrics: Diaphragm Bursting Strength Tester Method,
 - f) D 4491 - Water Permeability of Geotextiles by Permittivity
 - g) D 4533 - Trapezoid Tearing Strength of Geotextiles
 - h) D 4632 - Breaking Load and Elongation of Geotextiles (Grab Method)
 - i) D 6241 - Index Puncture Resistance of Geotextiles, Geo-membranes, & Related Products
 - j) F 355 - Shock Absorbing Properties of Playing Surface Systems and Materials
 - k) F 405 - Corrugated Polyethylene (PE) Tubing and Fittings
 - l) F 449 - Subsurface Installation for Agricultural Drainage or Water Table Control
 - m) F 667 - 8, 10, 12, and 15-inch Corrugated Polyethylene Tubing and Fittings
 - 5. American Wood Preservers' Association (AWPA):
 - a) C2 Lumber, Timbers, Bridge Ties, and Mine Ties
 - b) Preservation Treatment by Pressure Processes
 - 6. Current NFHS Rules, Guidelines, and Interpretations

1.5 DEFINITIONS

- A. Excavation: Removal of material encountered to subgrade elevations indicated and subsequent disposal or placement of materials removed.
- B. Unauthorized Excavation: Inadvertent or purposely removing materials beyond indicated subgrade elevations or dimensions without specific direction of the Architect. Unauthorized excavation, as well as remedial work resulting from unauthorized excavation directed by the Architect, shall be at the Playing Field Contractor's expense.
 - 1. Unauthorized excavation, including disposition of additional excavated materials and other work resulting from slides, cave-ins or remedial work shall be at the Playing Field Contractor's expense.
- C. Additional Excavation: When excavation has reached required subgrade elevations, the Architect will be notified and will make an observation of conditions. If the geotechnical engineer/Testing Lab determines that the bearing materials at required subgrade elevations are unsuitable, the excavation shall be continued until suitable bearing materials are encountered and excavated materials shall be replaced as directed by the Geotechnical Engineer.
 - 1. Removal of unsuitable material and its replacement as directed will be paid on the basis of the Conditions of the Contract relative to changes in work. A formal written submitted change in work must be submitted by the Playing Field Contractor for approval to the Architect, Civil engineer and the Parlier Unified School District County project manager before commencement of any work.
 - 2. Subgrade: The undisturbed earth or the compacted soil layer immediately below the proposed playing field drainage or soil materials.
- D. Finish Grade: This is the final surface grade with all the approved infill mix ratios at their optimum depth incorporated into the synthetic turf fibers.
- E. Drainage Gravel Aggregate Material: Approved stone material with the sizing and performance characteristics described herein. This drainage gravel material is installed immediately on top of the filter fabric of the finished subgrade surface. The material must be tested and approved before placement on the field.
- F. Finished Topping Stone Aggregate Material: Approved stone material with the sizing and performance characteristics described herein. This finished topping stone material is installed immediately on top of the drainage gravel aggregate to create a smooth uniform surface (uniform planarity) for the placement of the synthetic turf product, as well as to aid in achieving finish grade tolerances of the playing field subsurface.

1.6 SUBMITTALS

- A. Manufacturer's Product Data: Submit manufacturer's specifications and installation instructions for all products in the playing field system, including certifications and other data as may be required to show compliance with the Contract Documents. Included but not limited to the following: drainage pipe material, geotextile filter fabric, perimeter turf anchoring system, etc..
- B. Material Certifications: Turf Manufacturer's or vendor's certified analysis for infill material and sand infill amendments.
- C. Material Samples: Submit three (3) samples each of the following:
 - 1. Geotextile fabric, approximately 7"x11".
 - 2. All Drainage Pipe products, approximately 6 inches in length, full width
 - 3. All Gravel Aggregate Materials – See Section 1.8, "Quality Control"
- D. Synthetic Turf Material Samples and Test Reports:
 - 1. Synthetic Turf – Three samples, approximately 12" x 12".
 - 2. Main and Inlaid Seams: Two samples each, sewn (main) and glued (inlaid) per turf

manufacturer's instructions, approximately 7" x 11".

3. Synthetic Turf Colors: Three samples of each color used for field markings (White, Yellow, Green, Lime Green, Gold, Black, and Blue).
4. Infill/Sand Mix: with proper mix ratio - three samples, approximately 8-ounces each product.
5. Infill Material: Submit sieve analysis for all infill mix materials.
6. Submit to Parlier Unified School District for approval: Quality assurance information as delineated in Section 1.7 Quality Assurance below.
7. Certified copies of independent (third-party) laboratory reports on ASTM tests are as follows:
 - a) ASTM D72 - Specific Gravity
 - b) ASTM D418 - Pile Height, Tuft Spacing, Face Weight & Total Fabric Weight
 - c) ASTM D418 - Primary & Secondary Backing Weights
 - d) ASTM D418 - Backing and Perforation Diameter and Spacing
 - e) ASTM D1335 - Tuft Bind
 - f) ASTM D5034 - Grab Breaking Strength and Elongation
 - g) ASTM F-355 - Dynamic Cushion Test (G-max, HIC), Procedure A (system)
 - h) ASTM D2859 - Flammability (Pill Burn Test)
 - i) ASTM F3700 - PFAS Testing Report or current ASTM Method
- E. Supplier List: Submit a list of procured and contracted suppliers of all materials required for the entire playing field system.
- F. Progress Work Schedule: The Playing Field Contractor shall prepare a bi-monthly progress work schedule for all work described in these documents. This schedule shall be regularly updated and submitted as construction progress continues throughout the ultimate project completion.
- G. Shop Drawings:
 1. Synthetic Turf and Profile 10-Year Warranty
 2. All structural foundation designs.
 3. Quality Assurance and Quality Control 500 tons of aggregate material testing.
 4. Seam Plan layout of the entire playing field.
 5. Layout per the High School designated field lines, markings, and boundary lines.
 6. Construction detail sketches, especially those that may deviate from the plans and specifications. Including but not limited to the following: perimeter turf anchor details, etc.
- H. Subcontractor List: Submit a list of any key subcontractors for the project. Briefly describe the roles of responsibility for each as well as their experience with similar types of facilities as proposed as part of this constructed outline in plans and written specifications. This list should include but is not limited to:
 1. Land Surveying Company.
 2. 3rd Party certified soil laboratory specializing in playing field construction testing materials.
 3. 3rd Party independent surface material testing company specializing in playing field G-max, Shock Absorption, Vertical Deformation, Energy Restitution, Rotational Resistance, CFH, and surface infiltration testing.
 4. Geotechnical Testing Company.
 5. Concrete Construction Company.
 6. The Playing Field Contractor must have the ability to provide all the necessary current skilled employees to construct the entire playing field system including but not limited to a well-compacted subgrade, subsurface drainage collection system, drainage gravel blanket, Finished topping stone, uniform surface planarity, drainage/shock pad, concrete header board

attachment, and installation of the synthetic turf material and infill product.

7. The Parlier Unified School District reserves the right to reject any proposed subcontractor that has or is currently involved in any pending legal action against them that resulted from failure to meet critical deadlines, inadequate drainage performance, overall poor quality of workmanship, etc. If the Parlier Unified School District rejects any subcontractor, the Playing Field Contractor shall replace that subcontractor or company at no additional cost to the Parlier Unified School District.
- I. Synthetic Turf Manufacturer's Review: Shall submit a written statement, signed by Synthetic Turf Manufacturer that the plans and specification have been reviewed by a qualified representative of the turf manufacturer and that they agree that the proposed materials and entire system to be constructed for this synthetic turf field profile are proper and adequate for the applications shown in the design documents.
- J. Warranty: Provide a copy of the Synthetic Turf Manufacturer's standard 10-Year Warranty noting any exceptions to the Warranty information included in this Specification Section. No 3rd Party Warranty shall be accepted.
- K. Grade Verifications: A certified As-Built survey shall be prepared by a licensed State of Washington land surveyor shall be made of the in-place conditions at the compacted subgrade, subsurface drainage collection system, drainage gravel stone layer, finished topping stone layer, and finished synthetic turf surface grade with infill installed for demonstrating conformance to the specified grades shown on the final contract documents. The Playing Field Contractor shall not proceed until all grades, pipe inverts, pipe lengths, manholes, inline basins, have been submitted for approval by the Architect based on the signed and sealed As-Built surveys for all the above in-place conditions.
- L. Turf Product System Hold Harmless: The turf manufacturer shall submit a written statement holding the Parlier Unified School District, Architect, and its representatives harmless as to any liability and or costs of any type, including but not limited to legal costs, royalties, replacement costs, etc. associated with any claim by the turf manufacturer or others associated and with any patents, IPO or infringements of any current or future patent issued for the synthetic turf product, infill materials, installation methods or drainage characteristics. It is not the intent of these documents to promote or induce the use of intellectual property belonging to others or promote infringement of any known or currently not known patents, licenses, or rights of others.
- M. Statement of Supervision: Upon completion of the work, the Playing Field Contractor shall submit a written letter signed by the Synthetic Turf Manufacturer. Stating that the playing field inspection by the Synthetic Turf Manufacturer's representative was sufficient to ensure proper application of the completed system and all materials used and that all work was in accordance with the Contract Documents and that the installation is acceptable to the Synthetic Turf Manufacturer.

1.7 QUALITY ASSURANCE

- A. Any site or playing field damage caused during construction shall be required to be repaired and corrected before final acceptance and issuance of substantial completion at no additional cost to the Parlier Unified School District.
- B. The Playing Field Contractor shall be responsible for the protection of the synthetic field system and product after its installation through Substantial Completion.
- C. Grade Verification: As-Built surveys shall be prepared by a licensed State of Washington land surveyor shall be made of the top of the in-place finished compacted subgrade, drainage gravel stone layer, and the finished topping stone layer using a Robotic Total Station or similar equipment. It is preferable that the Total Station equipment (or similar) also be utilized to install the finished grades at subgrade and topping stone layers. All As-Built surveys and lab testing certification shall be submitted to the Architect for approval before proceeding to the next phase of construction. Failure to comply with this requirement may result in an additional cost to

demonstrate full project compliance with the approved contract documents and shall be conducted by the Playing Field Contractor at no additional cost to the Parlier Unified School District.

1.8 QUALITY CONTROL

- A. Bid Award and before construction: The Playing Field Contractor shall submit samples of each of the following materials to establish the baseline specification and mix ratios for the remainder of the testing process.
1. Gravel Material: Provide a half-gallon sample of each gravel drainage source and for each type of gravel material to be used for testing. This could include:
 - a) Drainage Gravel aggregate material.
 - b) Finished topping stone aggregate material.
 2. Infill Materials: Provide a half-gallon sample of each infill material to be used for testing. This shall include but is not limited to:
 - a) Cryogenic SBR Rubber
 - b) Silica Sand
 - c) Cooling Technology Product
- B. During Construction: Submit samples of each of the following during mass production of drainage gravel and finished topping stone aggregate materials for performance testing and before shipping to the site.
1. EARTHWORK MATERIAL QUALIFICATION AND TESTING:
 - a) If found necessary, submit the following test data for each potential borrow source.
 - Particle Size Analysis:
 - Method: AASHTO D422.
 - Number of Tests: Three (3) per potential source.
 - Acceptance Criteria: Gradation within specified limits.
 - Maximum Density Determination:
 - Method: Modified Proctor Test - ASTM D 1557.
 - Number of Tests: Three (3) per potential source.
 - b) Re-establish gradation and the maximum density of fill material if the source is changed during construction.
 2. EARTHWORK/COMPACTION TESTING:
 - a) All compaction testing shall be performed by the Playing Field Contractors' geotechnical testing agency. The Playing Field Contractor shall coordinate all work with the Parlier Unified School District project manager, Architect, and Civil engineer. Notify the Architect at least two (2) working days in advance of all phases of filling and backfilling operations. The Playing Field Contractor shall not proceed until the Architect and Engineer receives approved certification from the geotechnical testing company that the compaction is within allowable testing limits.
 - b) Compaction testing shall be performed to ascertain the compacted density of the fill and backfill materials in accordance with the Earthwork specification included in the Documents or as per the following methods:
 - IN-PLACE RELATIVE DENSITY:
 - Method: ASTM D-1556, Sand Cone Method
 - ASTM D-2922, Nuclear Method
 - NUMBER OF TESTS:

- One (1) per 2,500 SF in each vertical lift with a minimum of one (1) test per each vertical lift.
 - c) The Engineer may direct additional tests to establish gradation, maximum density, and in- place density as required by working conditions, at the Playing Field Contractor's expense.
 - d) Acceptance Criteria: The sole criterion for acceptability of in-place fill shall be in situ dry density. The minimum dry density for all fill or backfill shall be 95 percent of the maximum dry density as determined by the Modified Proctor Test (ASTM D-1557). If a test fails to qualify, the fill shall be further compacted and re-tested. Subsequent test failures shall be followed by the removal, replacement of the material, and retesting.
3. Drainage Gravel Material / Finished Topping Stone Aggregate Materials:
- a) A minimum of one gallon sample for every 500 tons of each material used shall be tested by the approved 3rd party certified soil testing laboratory for general compliance with the established Baseline specifications. All additional gravel materials shall be tested and certified against the approved baseline sample shop drawing before installation in the field. All costs associated with quality assurance and quality control testing are the Playing Field Contractor responsibility. All soil testing results must be submitted to the Architect for review and approval before any gravel aggregate material delivery.
4. Infill Materials:
- a) Random samples shall be pulled from bulk packages or piles on-site. The number of samples is at the Parlier Unified School District discretion. The samples shall be tagged and marked from the packages for future reference after testing is complete. Sieve analysis testing results shall be compared to the Vendor's previously submitted analysis for the in-fill materials for approval. Packages that do not meet approval shall be removed legally from the site. Initial testing shall be paid for by the Playing Field Contractor. Retesting shall be at the Playing Field Contractors' expense. Additional screening of rubber materials by the Playing Field Contractor to remove fines may be required at the Parlier Unified School District sole discretion at no additional cost to the Parlier Unified School District (if applicable).
 - b) Heavy Metals Ingestion Test Method – One test per field from the final supplier of infill materials using the ASTM F963 Toxic Heavy Metals method. Test to be performed by Northwest Laboratories, 241 South Holden St., Seattle, WA 98108 (206) 763-6252 or equal.
5. Synthetic Turf Material Testing: Before shipment to the project site, one 12" x 12" sample from each fifth roll shall be randomly taken and tested by an independent laboratory with experience testing these materials. Test results shall be submitted simultaneously to the Parlier Unified School District Project Manager, Architect, and the Playing Field Contractor. Samples/Rolls not meeting approval shall not be shipped. Testing shall be paid for by the Playing Field Contractor. Samples used for testing shall be tagged and marked and submitted to the Architect after testing is complete. The following shall be tested/reported:
- a) ASTM D418 - Pile Height, Face Weight & Total Fabric Weight
 - b) ASTM D418 - Primary & Secondary Backing Weights
 - c) ASTM D418 - Backing and Perforation Diameter and Spacing
 - d) ASTM D1335 - Tuft Bind
 - e) ASTM D1682 - Grab Tear Strength
6. SYNTHETIC TURF PRODUCT SAFETY STATEMENT:
- a) The Playing Field Contractor shall submit a signed statement with documents from the synthetic turf manufacturer that provide information on the safety of their product regarding PFAS, lead, heavy metals, and other chemicals used in their product.

C. TESTING AGENTS:

1. Sitework and Materials Testing Agents:
 - a) The Playing Field Contractor shall hire a separate contract testing agent to certify and make recommendations regarding compaction, concrete, geotechnical and other items required by the Work. The Playing Field Contractor shall notify the Architect and the Parlier Unified School District Project Manager regarding the timing, scheduling, and use of this agent.
2. The Parlier Unified School District Recommended Soil Laboratory Testing Agent:
 - a) The Playing Field Contractor shall hire the recommended Soil Laboratory Testing Agent to perform testing of the field system aggregate materials, including but not limited to drainage gravel material, finished topping stone, as well as testing the capability of the aggregate materials to meet, product gravel sieve sizes, permeability, bridging requirements and Micro Deval or Alternate Testing Method before construction. Agent(s) shall be a 3rd party certified independent laboratory, accredited, and insured. The Playing Field Contractor shall be fully financially responsible for all soil laboratory testing, sampling, and shipping costs.
 - b) The Soil Laboratory is to report/submit test results as they are known and simultaneously to the Playing Field Contractor, Parlier Unified School District Project Manager, and Architect.
 - c) The Architect shall be solely responsible for approving or rejecting all laboratory testing results shop drawings. The approved 3rd party independent testing laboratory shall be responsible for all testing data. No multiple testing agent data shall be submitted.
 - Recommended Soil Laboratory Testing Agent:

Turf & Soil Diagnostics
613 E. 1st Street
Linwood, KS 66052
(T) +1 855-769-4231
(E) lab@turfdiag.com
<http://www.turfdiag.com>
 - Or approved Equal Testing Laboratory by the Parlier Unified School District.
- D. Upon completion of the installation of Drainage Gravel Aggregate Material and Finished Topping Stone Aggregate, the specialized testing company shall perform 6 random infiltration tests for the field. The minimum infiltration rate shall be no less than 50 inches per hour. The Playing Field Contractor and Architect shall be present at these tests. Upon successful completion, the turf installation shall begin. Areas that do not meet the drainage performance requirements shall be repaired by the Playing Field Contractor and retested before synthetic turf installation.
- E. Synthetic Turf Surface Testing: Upon completion of the installation of turf surface, field markings, and infill mix materials. The specialized testing company shall perform a minimum of six (6) random percolation tests for the field. The Playing Field Contractor and the Architect shall be present at these tests. A minimum percolation rate shall be no less than 12 inches per hour at the surface without any visual standing of any water. Areas that do not meet the drainage performance requirements shall be repaired by the playing field contractor and retested before acceptance of the synthetic turf installation.

1.9 DELIVERY, STORAGE, AND HANDLING:

- A. All materials shall be delivered and stored within designated work limits or in an area approved by the Parlier Unified School District Project Manager and the Playing Field Contractor.
- B. All material shall be stored in strict accordance with the Synthetic Turf Manufacturer's recommendations.

- C. Special care shall be exercised during delivery and storage to avoid damage to any products.
- D. Products that are damaged will be removed and replaced, unless the product can be repaired in an acceptable manner by the Playing Field Contractor, at his/her direct expense.
- E. Packaged Materials:
 - 1. Deliver packaged materials in containers showing weight, analysis, and name of the manufacturer. Protect materials from deterioration during delivery, and while stored at the site. Store all materials out of low-lying or standing water areas.
- F. DRAINAGE GRAVEL AND FINISHED TOPPING STONE MATERIALS:
 - 1. Deliver only pre-approved tested aggregate material lots in clean, washed, and covered trucks to eliminate contamination during transportation. Place it directly onto the playing field area. Do not stockpile any pre-approved tested materials on site. All materials must be laboratory tested and approved by the Architect before delivery.

1.10 COMPLETION AND ACCEPTANCE:

- A. General: Field Completion shall be separated into two (2) phases, "Initial Punch List"- Preliminary Completion and "Substantial Completion."
- B. Preliminary Completion: Scheduled date for the initial punch list preparation shall be at least ten (10) calendar days before Substantial Completion can be considered. Notify the Architect and the Parlier Unified School District Project Manager in writing three (3) days before the scheduled date and time for the punch list preparation field visit. Before scheduling this field visit to prepare the initial punch lists of items that need to be corrected or addressed, the following items shall be completed and provided to the Architect and the Parlier Unified School District Project Manager three (3) days before the initial field visit:
 - 1. Completed Subsurface Drainage Collection System installed, and all required signed and sealed As-Built surveys.
 - 2. All drainage gravel material and finished topping stone aggregates in place must have been tested and approved based on the 500 tons of materials testing requirements.
 - 3. Field curbing was installed with a wooden nailer board and attachment anchors.
 - 4. Synthetic turf installed including approved infill mix materials and all field markings.
 - 5. In situ percolation tests were performed for both the entire gravel/finished topping stone profile and the synthetic turf infill surface.
 - 6. All inground equipment identified on the construction plans and specified in Section 11 68 00 - Athletic Field Equipment
- C. Substantial Completion: After "Preliminary Completion", the Playing Field Contractor must have completed or addressed all outstanding punch list items and must be fully in compliance with the project design and written specifications. "Substantial Completion". The Playing Field Contractor shall notify the Architect and the Parlier Unified School District Project Manager in writing, three (3) days before the scheduled date and time for the site visit to ensure that all outstanding punch list items have been completed to obtain "Substantial Completion." The following must be provided:
 - 1. All Punch List items have been deemed complete by the Parlier Unified School District Project Manager and the Architect.
 - 2. Submit five (5) copies of written operating and maintenance instructions. Provide format and contents as directed by the Parlier Unified School District Project Manager.
 - 3. Submit five (5) copies of all certified As-Built surveys performed during construction for Quality Control.
 - 4. Submit all copies of certified soil laboratory testing results for all related sub-grade, drainage gravel aggregate materials, topping stone aggregate materials, compaction, and field-testing

result for the in-place percolation rates for the complete subsurface profile and playing field surface.

5. Smooth, uniform playing surface, and level to meet the surface grading tolerances.
6. Written warranties/guarantees.
7. Upon completion of the synthetic field surface, the Playing Field Contractor shall provide the Parlier Unified School District staff with up to two (2) hours of maintenance training that shall be video recorded and supplied to the Parlier Unified School District Project Manager.
8. Upon completion, the Playing Field Contractor shall provide the Parlier Unified School District and the Architect with all project-related shop drawings, passing soils testing reports, 3rd Party independent surface material testing company specializing in playing field G-max, Shock Absorption, Vertical Deformation, Energy Restitution, Rotational Resistance, CFH, and surface infiltration testing. All as-Built survey drawings in a PDF and AutoCAD format in state plane coordinates. Failure to submit the required documents will result in the final payment being withheld. The final submission package is subject to review and approval by the Architect before making a final formal written recommendation for final payment by the Parlier Unified School District.

1.11 WARRANTY/GUARANTEE:

- A. General: Warranties / Guarantees specified in this Article shall not deprive the Parlier Unified School District of other rights the Parlier Unified School District may have under other provisions of the Contract Documents and are in addition to and run concurrently with other warranties/guarantees made by the Playing Field Contractor under requirements of the Contract Documents.
- B. The following are inclusive of the term "Playing Field System" for provisions of the guarantee:
 1. Final grade tolerances to one-quarter inch in the length of 25' of finish grade in any direction (.04').
 2. Synthetic turf products as specified and represented by the Turf Manufacturer also including seams and adhesives type used in the installation.
 3. Properly constructed and working subsurface drainage collection system.
 4. All product materials and specified products have been installed in accordance with the manufacturer's product recommendations.
 5. Proper infiltration testing results demonstrate that the entire synthetic turf profile system which includes synthetic turf product, infill mix, finished topping stone aggregate, and drainage gravel aggregate materials shall be guaranteed to have a minimum infiltration rate of no less than 12 inches per hour without any visual ponding of water.
 2. The synthetic turf manufacturer shall retain a third-party certified testing laboratory and shall perform field safety testing (based on the highest level of intended athletic sports usage) testing before acceptance/Substantial Completion. Parlier Unified School District shall be responsible for maintaining this field and testing each year for the life of the Guarantee. The playing field is limited to the following athletic uses: Football, Soccer. Football usage in this field should also be considered in the final determination relating to the proper ASTM and EN guidelines testing.
- C. ASTM and EN Testing Required
 1. ASTM 3189-20 - Determination of Shock Absorption
 2. ASTM 3189-20 - Determination of Vertical Deformation
 3. ASTM 3189-20 - Determination of Energy Restitution
 4. ASTM F1936-19 - Determination of Impact Attenuation

5. EN 15301:2007 - Determination of Rotational Resistance
6. EN 1177:2018 Method 2 - Determination of Critical Fall Height
1. Initial safety field testing shall be provided by the synthetic turf manufacturer in the third-party certified testing laboratory before acceptance/Substantial Completion.
2. The Parlier Unified School District Project Manager and the Architect shall receive a copy of the Initial G-Max and additional above testing results before acceptance/Substantial Completion.
 - a) The initial test shall not exceed 150 G's at any one point on the field.
 - In cases where the results of the above testing exceed the specified values, the condition shall be corrected by the synthetic turf manufacturer.
 - The synthetic surface manufacturer shall provide adequate information to confirm that the mitigation measures were effective.
 - b) At no time in the life of the Guarantee shall G-Max exceed 200G's be above that range, at any one point on the field. The Parlier Unified School District shall conduct yearly testing and retain the records for all corrective measures taken, if any.
3. The initial depth of the infill material shall be measured at the point of each test location.
4. The initial testing shall be performed by a certified independent lab and paid for by the Playing Field Contractor.
5. If the Playing Field Contractor does not perform the tests within 30 days of the dates noted, the Parlier Unified School District shall at its discretion order this work performed and the Playing Field Contractor shall bear this cost.
- D. The Playing Field Contractor shall not be held liable for incidental or consequential damages. The Synthetic Turf Warranties described shall be conditioned upon:
 2. The Parlier Unified School District shall make all minor repairs to the synthetic turf system as discovered, unless covered under the terms of the 10-year or 1-year workmanship warranties.
 3. The Parlier Unified School District shall maintain the field as described in the Owner's Manual submitted by the Playing Field Contractor to Parlier Unified School District.
- E. The warranty does not cover any failure related to any damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty, or loads exceeding the Synthetic Turf Manufacturer's recommendations.
- F. The total synthetic turf system and subsurface profile warranty length shall be ten (10-year) minimum.

1.12 SPARE PARTS/ATTIC STOCK

- C. Stockpile Materials (Attic Stock): Provide the following additional materials stored as directed by the Parlier Unified School District. All infill products shall be provided in super sacks.

Material	Quantity
All Infill Profile Materials	1/2 ton (each)

- D. SYNTHETIC TURF: The minimum size of turf shall be 10' x 10'. Provide the following minimum materials and store as directed by Parlier Unified School District.
 1. Green and Lime Green Turf: 2,000 square feet
 2. Blue Turf: 250 square feet
 3. White and Gold Turf for Lines: 100 linear per color feet 4-inch width.

PART 2 – PRODUCTS

2.12 EARTHWORK MATERIALS:

- A. Suitable Material: Soils classified by ASTM as GW, GP, GM, GC, SW, or SP, free from organic, frozen, or other deleterious materials. When approved by the Field Designer / Architect Geotechnical Engineer on a case-by- case basis, Select Fill is an acceptable alternative.
- B. Structural Fill: non-plastic, sound, durable, granular particles consisting of sand, gravel, stone, or blends with these materials, free from organic, frozen, or other deleterious materials, conforming to the following size and percentage passing requirements:

Sieve	Percentage Passing
4"	100
No. 40	0-70
No. 200	0-10

- C. All gravel and stone shall be angular. Rounded or river stones are not allowed.

D. GEOTEXTILE FILTER FABRIC:

1. General:

- a) The geotextile fabric shall be a nonwoven sheet of plastic yarn as defined by ASTM D123 and conform to the criteria presented in the following table. These requirements shall be based on the Minimum Average Roll Value (MARV) which is defined as the value that can be expected, with 95% confidence, to be the minimum test average obtained on a roll sampled and tested in accordance with ASTM D4759.
- b) Geotextile shall meet the requirements of AASHTO M288 except as modified herein.

Physical Property	ASTM Procedure	Minimum Acceptance Criteria	
Class I			
Geotextile Class 1		English	Metric
Grab Tensile Strength	D 4632	120 lbs.	534 N
Grab Elongation at Break	D 4632	50%	50%
CBR Puncture Strength	D 6241	310 lbs.	1380 N
Mullen Burst Strength	D 3786	260 psi	1790 Kpa
Trapezoidal Tear	D 4533	50 lbs.	223 N
Apparent Opening Size (AOS)	D 4751	70 US Sieve (max.)	212 µm (max.)

2. Product

- a) Mirafi 140N or approved equivalent.

E. DRAINAGE GRAVEL MATERIAL(S) AND FINISHED TOPPING STONE:

1. The drainage gravel materials and finished topping stone shall conform to the turf vendor's standard specifications subject to the Field Designer and Architects approval based on the testing labs certification and meet the following requirements using ASTM Method C136:

Class II Permeable Base Rock Drainage Gravel Stone		Caltrans Section 68	
Sieve Size	% Passing	Sieve Size	% Passing
1-1/2"			
1"	100	1"	100
3/4"	96	3/4"	90 -100
1/2"	58	1/2"	
3/8"	38	3/8"	40-100

No. 4	28	No. 4	25 - 40
No. 8	23	No. 8	18 - 33
No. 16	18	No. 16	
No. 30	12	No. 30	5-15
No. 50	6	No. 50	0-7
No. 100	3	No. 100	
No. 200	1.49	No. 200	0-3

Drainage Gravel Trenching Material 57 Stone - Caltrans		Finished Topping Stone 3/8 Crushed Stone - Vulcan	
Sieve Size	% Passing	Sieve Size	% Passing
1"	88 - 100	1"	
3/4"	70 - 100	3/4"	
1/2"		1/2"	100
3/8"	0 - 30	3/8"	85 -100
No. 4	0 -16	No. 4	0-25
No. 8	0 - 6	No. 8	0-6
No. 16		No. 16	
No. 50		No. 50	

2. All stones shall be angular. Rounded or river stone is not acceptable.
 - a) Any aggregate sample with shell or shell fragments is not acceptable. The test report shall note if any sample received contains any shell or shell fragments.
 - b) Topping stone and drainage gravel aggregate materials shall be evaluated every 500 tons by the approved Parlier Unified School District testing agent and shall be submitted to the Architect, Field Designer, and the Parlier Unified School District Project Manager for approval before placement on any playing field. All testing will be at the Playing Field Contractors' expense. *Local quarry quality control testing is not and will not be an acceptable testing method for the approval of any aggregate materials.*
3. In no instance shall multiply quarry sources be used within a single playing field area.
4. Bridging Characteristics:
 - a. $3 < \frac{D_{50} \text{ base rock}}{D_{50} \text{ top stone}} < 6$
 - b. $\frac{D_{85} \text{ top stone}}{D_{15} \text{ base rock}} < 2$
5. Drainage Characteristics
 - a) Permeability for Base Rock aggregate material shall be greater than 10"/hr.
 - b) Permeability for Finished Topping Stone aggregate shall be greater than 10"/hr.
 - c) Porosity for the Finished Topping Stone and Base Rock aggregate materials shall be greater than 25% when compacted and saturated.
6. Finished Topping Stone aggregate is allowed for use to level the finished surface of the Drainage Gravel aggregate material. The total allowable depth for the proposed finished topping stone aggregate material to be in the range between 1/2" to 1" inch maximum.
7. All finished topping stone and drainage gravel aggregate materials should minimally meet the Micro Deval method (ASTM D6928).

<u>Testing Method</u>	<u>Criteria</u>
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Micro Deval (ASTM D6928) Not to exceed a loss of Material greater than 18%.

- a) Any loss greater than 18% will not be permitted for use, unless otherwise approved by the Field Designer or Architect.

2.13 CONCRETE FIELD CURBING:

- A. The synthetic turf concrete curbing and nailer board shall be located at the field perimeter or turf edges and shall be as per drawings or approved equal. Concrete curb detail as shown on drawings is the minimum base bid design requirement.
- B. WOODEN NAILER BOARD:
 - 2. Yella Wood
 - a) 2" x 4" Pressure Treated
 - b) Or approve equivalent.
- C. ANCHORS NAILS FOR WOOD NAILERS ATTACHED TO FIELD CURB:
 - 2. Stainless Steel Ramset/Redhead
 - a) Use 4 per 8-foot length nailer
 - b) Use 5 per 10-foot length nailer
 - c) 4 inches from the end of the board

2.13 SYNTHETIC TURF PRODUCT:

- A. GLUED SEAMS:
 - 1. Adhesives for bonding tufted synthetic turf shall be one-part moisture cured polyurethane obtained from a single manufacturer. Modify the adhesive as recommended by the Manufacturer during adverse weather conditions.
 - 2. Supplemental backing material shall be used if inlay seams are cut through the turf product.
 - 3. PRODUCT
 - a) Nordot Adhesive #34G
 - b) Sopracolle "E", Manufacturer – Soprema USA, Wadsworth, Ohio
 - c) Or approved equivalent.
 - 4. SUPPLIER
 - a) Synthetic Surfaces, Scotch Plains, NJ, (908) 233-6803
 - b) Or approved equivalent.
- C. SEWN SEAMS:
 - 1. The cord for sewing seam turf shall be high strength polyester fiber or nylon as recommended by the synthetic turf manufacturer, utilizing the flap method for joining seams.
- D. TURF PERFORATIONS:
 - 1. Turf products with a coated or non-drain backing must include perforations in the backing with no less than 98% perforations found in any roll. Any rolls with less than 98% perforations will be rejected.
 - 2. Perforations shall be a minimum of 3/16 inch diameter clear opening with a staggering maximum spacing of no greater than 4 inches.
 - 3. Perforations shall be full diameter with no residue or hanging fibers remaining.
 - 4. Turf products with permeable backing do not require perforations.
 - 5. A minimum percolation rate for all turf products of 30 inches per hour shall be provided for the backing and verified by a third-party independent testing agent.

2.14 SYNTHETIC INFILL TURF PRODUCT

- A. Infill Product Mix: Silica Sand and Cryogenic SBR Rubber
1. The Turf Manufacturer must provide five (5) successful similar projects in the State of California (Only) that are utilizing the same proposed synthetic turf pile height, total pile weight, and all infill mixed products.
- B. APPEARANCE/FEEL:
1. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types.
 2. The finished surface shall resist abrasion and cutting from normal use.
- C. INFILL MATERIALS:
1. A mixture of silica sand, and cryogenic SBR rubber fill in specific infill mix ratios per manufacturer. The synthetic turf company and is fully responsible for 100% replacement of the entire infill product replacement and or full synthetic turf replacement as a result of surface infiltration decline or complete failure.
 2. Infill material shall be provided at a depth leaving the top 1/2-inch height of visible synthetic turf fabric or as recommended by the manufacturer based on weight and/or as agreed by the Parlier Unified School District, Architect, and Field Designer.
 3. The infill material shall be Silica Sand and Cryogenic SBR Rubber mix.
 4. Infill materials shall be supplied by a single source.
 - a) Sand Infill Material Characteristics
 - Clean round particles
 - The majority of particles between 0.50 and 1 mm
 - < 5% retained on a #100 sieve (.15 mm)
 - Not more than 0.5% of particles passing the #200 sieve
 5. The initial laboratory testing and approval of the infill materials and the appropriate mix ratio (minimum, maximum, and optimum depth must be provided as a shop drawing) and once approved shall set the baseline for all additional testing of the material.
 6. Synthetic Turf Manufacturer shall verify and approve the test results of the infill materials for the initial and all additional quantities for additional testing.
 7. The proposed infill mix must be tested by utilizing a third-party certified independent testing laboratory in accordance with the proposed synthetic turf product, silica sand, organic infill, and cooling technology based on the optimum depth of the proposed mix ratio and provide the infiltration rate for the combined infill mix products utilizing the proposed synthetic turf product and submit the final testing results for review and approval by the Architect before installation on the playing field.
- D. GLUED SEAMS:
1. Adhesives for bonding tufted synthetic turf shall be one-part moisture cured polyurethane obtained from a single manufacturer. Modify the adhesive as recommended by the Manufacturer during adverse weather conditions.
 2. Supplemental backing material shall be used if inlay seams are cut through the turf product.
 3. PRODUCT
 - a) Nordot Adhesive #34G
 - b) Sopracolle "E", Manufacturer – Soprema USA, Wadsworth, Ohio
 - c) Or approved equivalent.
 4. SUPPLIER
 - a) Synthetic Surfaces, Scotch Plains, NJ, (908) 233-6803
 - b) Or approved equivalent.

E. SEWN SEAMS:

1. The cord for sewing seam turf shall be high strength polyester fiber or nylon as recommended by the synthetic turf manufacturer, utilizing the flap method for joining seams.

F. TURF PERFORATIONS:

1. Turf products with a coated or non-drain backing must include perforations in the backing with no less than 98% perforations found in any roll. Any roll with less than 98% perforations will be rejected.
2. Perforations shall be a minimum of 3/16 inch diameter clear opening with a staggering maximum spacing of no greater than 4 inches.
3. Perforations shall be full diameter with no residue or hanging fibers remaining.
4. Turf products with permeable backing do not require perforations.
5. A minimum percolation rate for all turf products of 30 inches per hour shall be provided for the backing and verified by a third-party independent testing agent

2.15 SYNTHETIC INFILL TURF MAINTENANCE EQUIPMENT

- A. Equipment to be included in the project bid pricing. The Playing Field Contractor shall include the purchase and necessary training associated with the purchase of the Synthetic Turf Broom and Sweeper Model(s): Per approved turf manufacturer. (1 each for this contract)

PART 3 – EXECUTION

3.1 EXAMINATION AND PROTECTION

- A. Previous Documents: The Playing Field Contractor to review Earthwork specifications from previous work to become familiar with and understand the extent of the previous work regarding earthwork and subgrade conditions.
- B. Verification of Conditions: Examine areas and conditions under which all work of this Section is being performed. Do not proceed with any work until unsatisfactory conditions have been corrected. Commencement of work implies acceptance of all areas and conditions.
- C. Protection of Work: Protect all ongoing work, so as not to delay work due to weather or project-related construction. This includes but is not limited to the use of tarps, geotextile fabric, plywood, and other protective measures.
- D. Protection of Persons and Property: Provide all necessary measures to protect workmen and passersby. Barricade open excavations occurring as part of the work, as required by municipal or other authorities having jurisdiction.
 1. Protect adjacent construction throughout the entire operation. Protect newly graded areas from destruction by weather or runoff. Protect structures, utilities, pavements, and other improvements from damage caused by settlement, lateral movement, undermining, and washout.
- E. Unanticipated Conditions: Notify the Architect immediately upon finding evidence of previous structures, materials that penetrate below designated excavation levels, or other conditions which are not shown, or which cannot be reasonably assumed from existing surveys and geotechnical reports. Secure the engineer's instruction before proceeding with further work in such areas.

3.2 EARTHWORK EXECUTION / PLAYING FIELD SUBGRADE

A. PREPARATION:

1. Establish the required lines, levels, contours, and datum. The Playing Field Contractor

shall coordinate and ensure that the final grade of various materials such as the subgrade, drainage gravel aggregate, finished topping stone aggregate, and synthetic turf surface grading with infill incorporated in the final surface grade, etc., that will result in the final field grades complying with the final Contract Drawings when the complete system is installed.

2. Maintain benchmarks and other elevation control points. Re-establish, if disturbed or destroyed, at no additional cost, to the Parlier Unified School District.
3. Establish the location and extent of utilities before the commencement of grading operations.
4. GROUNDWATER CONTROL:
 - a) Where groundwater levels are sufficiently high, always provide pumps in sumps as required, maintaining groundwater at a minimum depth of two feet below the excavation bottom. Maintain dry conditions until completion and acceptance of the base before synthetic turf placement.
 - b) Provide standpipes or other means of monitoring groundwater levels during groundwater control operations. Sumps shall be lined with geotextile filter fabric. Conduct dewatering operations in a manner that will limit the withdrawal of fines.
5. SURFACE WATER CONTROL:
 - a) All earthwork operations shall be conducted in a manner to prevent surface water from infiltrating into the subgrade and base. Drainage is always to be maintained in all parts of the site to drain surface water without ponding. The Playing Field Contractor, at his own expense, shall undercut soils saturated by ponding and backfill per this section at the direction of the Architect.

B. EXCAVATION:

1. Excavation shall consist, in general, of the excavation of whatever substance is encountered to the lines, grades, and sections shown on the Drawings, including excavation as necessary for grading and other similar features.
2. During construction, the grading operations shall be executed in such a manner that the excavation will always be well-drained. All grading shall be finished on neat, regular lines conforming to the sections and contours shown on the Plans.
3. Removal of materials beyond the indicated subgrade elevations, without authorization by the Architect, shall be classified as unauthorized excavation and shall be performed at no additional cost to the Parlier Unified School District.
4. Excavation shall be performed properly with all other associated operations.
5. Maintain the slopes of excavation in a safe condition until completion of the grading operation.
6. All excavation work shall be reviewed and approved by the Architect or Geotechnical Engineer before proceeding with construction.
7. Any excess excavation shall be removed from the site to disposal areas at the Contractor's expense.

C. FILL:

1. All site fill material shall be "Structural Fill" unless otherwise shown on the Drawings or directed by the geotechnical engineer. "Structural Fill" shall be placed in a place of "Suitable Material" that was directed by the Geotechnical Engineer.
2. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from the ground surface before the placement of fill.
3. Before placing fill over undisturbed material, scarify to a minimum depth of six (6) inches.
4. The original ground or subgrade shall be proof rolled until the underlying soil is thoroughly compacted to the satisfaction of the Architect. A steel-wheel tandem roller weighing 8 to 10

tons of equipment capable of obtaining the same compaction effort shall be used to obtain a thoroughly compacted subgrade. The subgrade shall be inspected before any fill operations or construction of improvements. Remove or re-compact any soft or loose soils as determined by the geotechnical engineer before filling. Remove any material determined to be unsuitable by the geotechnical engineer and replace it with compacted suitable material.

5. A thoroughly and satisfactorily compacted subgrade is defined as having a minimum dry density of 95 percent of the maximum density of the material used as determined by the Standard Proctor Test (ASTM D 698). The subgrade material shall be compacted at moisture content suitable for obtaining the required density.
 - a) When the existing subgrade ground surface has a density less than that specified under "Compaction" for particular area classification, break up the ground surface. Scarify the existing subgrade to a depth of 8 inches before compacting. Moisture condition between 3 percent below and 2 percent above optimum moisture content, and re-compact to at least 95 percent of standard proctor density (ASTM D698).
6. Placement of backfill and fill materials in layers not more than six (6") in loose depth. Lift height shall be governed by the ability of the compaction equipment to obtain the required compaction with six (6") as a maximum lift height. Before compaction, moisten, or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on muddy surfaces, ponding water, or extraneous debris.
7. When work is suspended during periods of freezing weather, measures shall be taken to prevent fill already in place from freezing. Upon resumption of work after any inclement weather, prepare the exposed surface by proof rolling to identify any zones of soft/loose soils. Soft/loose materials or frozen soils shall be removed and replaced by compacted select fill.

D. MOISTURE CONTROL:

1. Where subgrade soil material, fill, or backfill must be moisture conditioned before compaction, uniformly apply water to the surface and to each layer of fill or backfill as necessary to provide optimum moisture content. Prevent ponding or other free water on the surface after, or during, compaction operations.
2. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing, until the moisture content is reduced to a value that will permit compaction to the percentage of maximum density specified.

E. GRADING:

1. The finished grade lines are shown on the contract drawings. Upon completion of this work, all debris shall be cleaned out and removed from the premises.
2. All cutting, filling, backfilling, and grading necessary shall be done to bring the area to the following grade or subgrade levels:
 - a) The final elevation of the Subgrade shall be within plus or minus one-tenth inch on a 25 foot by 25-foot grid of the finished grades indicated on the Contract Drawings. Laser-controlled or indicated equipment shall be used for this part of the work.
 - b) The subgrade shall mirror the final finish elevation of the field surface regarding slope except as indicated otherwise denoted on the drawings.
 - c) All surfaces shall be graded to drain to drainage structures with no ponding. The grading tolerances given above do not relieve the Playing Field Contractor from this requirement.
3. Sufficient grading must be done during the progress of the work so that the entire site shall be well-drained and free from water pockets.
4. Finish grading, including dressing swales, disposing of excess material and all other work

necessary to prepare the site for final surfacing shall be done after construction of structures is complete.

F. COMPACTION EQUIPMENT

1. Compaction equipment used for the Work is subject to approval by the Geotechnical Engineer. Any equipment not originally manufactured for compaction purposes and equipment which is not in proper working order will not be approved. Furnish manufacturer's specifications covering data not obvious from a visual inspection of the equipment and necessary to determine its classification and performance characteristics.

3.3 EARTHWORK EXECUTION / FINISH PLAYING FIELD SUBGRADE

A. PLAYING FIELD SUB-GRADE REQUIREMENTS:

1. Trim to finish playing field subgrade meeting the finish elevation tolerances as described herein.
2. All cutting, filling, backfilling, and grading necessary shall be done to bring the playing field areas to the following tolerances:
 - a) The final elevation of the finish playing field subgrade shall be plus or minus one-tenth inch at any point on the field and a 25 foot by 25-foot grid of the finished grades indicated on the Contract Drawings. Laser-controlled or indicated equipment shall be used for this part of the work.
 - b) Finished playing field subgrade shall mirror the final finish elevation of the field surface regarding slope unless otherwise denoted on the drawings or details.

- B. Playing Field Subgrade elevation verification: A certified survey by a State licensed land surveyor shall be performed at a 25-foot grid for each field to verify the grade and elevation of the sub-grade. The survey shall indicate spot elevations and a tenth of foot contours (.04'). Must be reviewed and approved by the Architect before placement of any additional materials.

C. LAYOUT AND CONTROL:

1. The Playing Field Contractor shall be responsible for furnishing, setting, and marking all line and grade, and location stakes, including offsets and general construction staking.
2. Playing Field Contractor to establish required lines, levels, contours, and the datum in preparation for achieving finish playing field surface grade. The Playing Field Contractor responsible for work shall coordinate and ensure that the final elevations of various materials such as the subgrade, concrete curbing, nailer board, drainage gravel aggregate, finished topping stone aggregate layers, synthetic turf, turf infill, etc., will result in the final playing surface turf elevations being in conformance with the final Contract Documents.
3. Maintain benchmarks and other elevation control points. Re-establish, if disturbed or destroyed, at no additional cost to the Parlier Unified School District.
4. Establish the location and extent of utilities before the commencement of grading operations.

5. SURFACE WATER CONTROL:

- a) All earthwork operations shall be conducted in a manner to prevent surface water from infiltrating into the sub-grade and base. Drainage is always to be maintained in all parts of the site to drain surface water without ponding. The Playing Field Contractor, at his own expense, shall undercut soils saturated by ponding and backfill per this Section at the direction of the Geotechnical Engineer.

D. PLAYING FIELD FINISH SUB-GRADING:

1. After approval of subgrade, trenching
2. All cutting, filling, backfilling, and grading necessary shall be done to bring the playing field areas to the following tolerances:

- a) The final elevation of the finish playing field subgrade shall be plus or minus one-quarter inch at any point on the field and a 25 foot by 25-foot grid of the finished grades indicated on the Contract Documents. Laser-controlled or indicated equipment shall be used for this part of the work.
 - b) The finish playing field subgrade shall mirror the final finish elevation of the field surface regarding slope unless otherwise denoted on the drawings.
- E. Playing Field Finish Subgrade elevation verification: A certified as-built survey by a State licensed land surveyor shall be performed at a 25-foot grid for each field to verify the elevations of the subgrade. The survey shall indicate spot elevations and a tenth of foot contours (.04').
- F. Finish grading outside of the playing field areas:
 - 1. Includes but is not limited to disposing of excess material and all other work necessary to prepare the site for final surfacing shall be done after construction of structures is complete.
 - 2. All surfaces shall be graded to drain to drainage structures with no ponding.
 - 3. The finished grading shall be graded to a tolerance of no greater than a one-tenth inch.

3.4 FIELD CURB/TURF NAILER:

- A. Install approved anchoring/nailing system(s) at the entire perimeter/edges of turf installation.
- B. Coordinate installation with the installation of concrete, storm structures, and other adjacent construction as shown on the drawings.
- C. INSTALLATION OF GEOTEXTILE FILTER FABRIC:
 - 1. The filter fabric shall be placed as recommended by the manufacturer and approved by the Architect, and Civil Engineer on surfaces that have been prepared to conform to these specifications and found acceptable for filter fabric installation.
 - 2. All overlaps/seams in the field area shall be at least twelve inches in width without tension, stress, folds, or creases. Overlap in the direction of the runoff flow.
 - 3. Install geotextile fabric onto the entire extent of the subgrade and side slopes.
 - a) Extend fabric a minimum of 12 inches past each side of the top of the trench on top of the subgrade and attached between the concrete header curb and nailer board.
 - 4. Sandbags or other devices may be used as required to hold the fabric in position during installation. Materials, equipment, or other items shall not be dragged across the fabric or be allowed to slide down slopes on the fabric.
 - 5. Smoking shall not be permitted by personnel working on the fabric.
 - 6. All areas of fabric damaged during installation as determined by the Architect shall be repaired by the Playing Field Contractor as specified at no additional cost to the Parlier Unified School District.
 - 7. At the time of installation, the fabric will be rejected if it has defects, ribs, holes, flaws, deterioration, or damage incurred during manufacture, transportation, handling, or storage. Damaged materials shall be removed and replaced at no additional cost to the Parlier Unified School District.
 - 8. Fabric shall be covered as soon as possible after placement to minimize exposure to sunlight and other types of contamination such as surface run-off.
 - a) Filter fabric shall not be exposed for more than 10 days.
 - b) Any filter fabric that becomes overly contaminated shall be removed and replaced with new filter fabric.
 - 9. The Playing Field Contractor shall temporarily fold the fabric over at the tops of the trenches during construction to eliminate migration of soil materials into the gravel trench. Just

before installation of the drainage gravel aggregate, this fold shall be undone, and fabric shall be laid over the finished subgrade. Should contamination of the gravel trench occur, the Playing Field Contractor shall remove all contaminated material and replace it with clean approved materials at no additional cost to the project or the Parlier Unified School District.

3.5 INSTALLATION OF DRAINAGE GRAVEL / FINISHED TOPPING STONE

- A. Install only tested and approved material at a uniform depth as indicated on drawings.
- B. Placement of the drainage gravel aggregate shall proceed from a stable area next to the geotextile filter fabric and systematically worked outward onto the field area.
 - 1. All aggregate material shall be pushed forward and not dumped onto the filter fabric in such a manner as to result in damaging the installed filter fabric.
 - 2. Laser-operated equipment shall be utilized.
 - 3. All equipment used in spreading or traveling on the aggregate material shall exert low ground pressures and shall be priorly approved by the Playing Field Contractor, Turf Manufacturer, and the Architect.
 - 4. DURING PLACEMENT AND SPREADING:
 - a) A minimum depth of seven (7) inches of granular material shall always be maintained between the fabric and wheels of trucks or spreading equipment.
 - b) Dozer blades, etc. shall not make direct contact with the fabric. If tears occur in the fabric during the spreading operation, the granular material shall be cleared from the fabric, and the damaged area repaired as previously described.
 - c) All equipment traveling on the drainage of the topping stone gravel aggregate layer shall avoid making sharp turns, quick stops, or quick starts.
 - d) Care shall be taken to not disturb, displace, or damage the geotextile fabric or the drainage system.
 - e) The Playing Field Contractor shall install the topping stone aggregate layer in such a way as to reduce the separation of the fines and larger particles in the drainage gravel aggregate material.
- C. PLACEMENT OF THE FINISHED TOPPING STONE:
 - 1. This finished topping stone aggregate layer shall be placed over the drainage gravel aggregate base at a finished depth as shown on the drawings to produce a uniform planarity /smooth surface before the placement of the synthetic turf. Due to possible drifting of this finished topping stone aggregate material into the drainage gravel aggregate layer below, more material may be required than the finished depth to eventually achieve finished grade elevations at the top of the finished topping stone aggregate layer and shall be considered as part of the overall quantities necessary. The Playing Field Contractor shall adjust the depth of the drainage gravel aggregate if necessary if the finished topping stone aggregate will excess 1" in depth upon completion of the subsurface profile.
 - 2. The Playing Field Contractor shall install the finished topping stone aggregate layer in such a way as to reduce the separation of the fines and larger particles in the drainage gravel aggregate blend.
- D. FINISH GRADE TOLERANCE FOR DRAINAGE GRAVEL AND FINISHED TOPPING DRESSING STONE
 - 1. Shall be verified using laser operated survey instrument with a tolerance of +/- one-quarter inch over 25 feet in any direction or (.04')
- E. A survey of the finished spot grades is to be developed by a State licensed surveyor over the entire surface in a 25-foot grid. The survey shall be certified (signed) and submitted to the Owner and its representatives for approval before installing the synthetic turf. The survey shall indicate spot

elevations and a tenth of foot contours (.04').

- F. Upon acceptance of the final topping stone grade by the Architect the Synthetic Turf Installation can commence.

3.6 INSTALLATION OF SYNTHETIC TURF

- A. Before beginning turf installation on the field, the Turf Installer shall submit a written statement accepting the playing field area conditions as described earlier in this Specification.
- B. Synthetic Turf shall be installed by a crew approved by the Synthetic Turf Manufacturer in strict accordance with manufacturer's recommendations and instructions including but not limited to fabric, adhesives, seaming and abutting, or attaching to adjacent materials.
- C. FIELD MARKINGS AND LAYOUT:
1. The field shall be temporarily secured at the edges with ballast or other similar means as reasonably possible to prevent wind from misaligning or moving the turf installation before and throughout the installation of the infill materials.
 2. The field lines shall be tufted or inlaid for field sports as shown on the drawings.
 3. All lines and field markings shall be tufted in or installed as inlaid. Wherever possible, lines shall be tufted into turf panels in place of inlays. All markings shall have distinct edges and shall not vary more than 1/4 inch in width and location.
 4. The synthetic turf shall be of sufficient length to permit full cross-field installation when possible. No head or cross seams shall be allowed except where required for the lining.
 5. Final field markings and lines for the synthetic field surfacing shall be laid out as shown on the drawings, shop drawings, and as approved by the Architect and the Parlier Unified School District.
 6. The Parlier Unified School District to make the final determination of colors, markings, etc.
- D. SEAMS AND INLAYS:
1. All sewn seams glued with an adhesive as recommended by the Synthetic Turf Manufacturer and installed per manufacturer's instructions.
 2. All seams shall be flat, tight, and permanent with no separation or fraying.
 3. The width between fiber rows at seams shall be equal to that of the tufting gauge of the turf product.
 4. All seams shall be brushed, and fibers trimmed as necessary to appear "seamless".
 5. All seams shall be rolled before infill material installation for smooth surface appearance and feel.
 6. All glued seams (inlays) shall be brushed to eliminate adhesive materials from turf fibers.
 7. Supplemental backing used at glued seams (inlays shall bridge the seam or edges a minimum of 4 inches).
 8. All inlaid lines shall be backed using seaming tape with a width of 12 inches or shaved in and glued to the backing as per Synthetic Turf Manufacturer premium installation methods.
- E. APPLICATION OF ADHESIVE MATERIALS OR INFILL MATERIALS
1. Air or material temperatures are below 10 degrees C. (Shall not be applied)
 2. Rain is falling or conditions exist or are pending that will be unsuitable to the installation. Infill materials: (Shall not be applied)
 3. Do not begin the installation of the infill materials until the playing field has been observed in the presence of the Architect and the Parlier Unified School District Project Manager.

Debris from turf installation shall be removed, seams and inlays shall be observed. Inlays using glue shall be properly set up before infill is added.

4. Apply dry infill materials when the turf is dry.
 5. The path from the stored on-site infill materials shall be kept clean and clear to eliminate contamination in the playing field area.
 6. For installations, the final approved infill mix shall be applied in numerous uniform layers over the entire surface utilizing industry-standard broadcasting equipment.
 7. The Playing Field Contractor shall utilize a combination of rolling and watering the surface after the infill mix materials have been installed to settle the materials into the turf. After this process, the Architect and the Parlier Unified School District project manager shall conduct an on-site field observation of the final surface for surface stability and possible settlement or unevenness of infill depth. Additional treatments may be required to achieve approval by the Parlier Unified School District and the Architect to achieve footing, stability, and uniformity of infill optimum depth.
 8. Infill mix materials shall be applied at a uniform depth and an ultimate finish grade tolerance of 1/4 inch at any point over the entire playing field area.
 9. Synthetic Turf fibers shall not be buried or trapped below infill mix material when complete.
- F. Anchor turf edges at field curb at field perimeter using wood nailer as shown on drawings. Adjust header board elevation based on the final Infill mix product approved.

3.7 FIELD MARKINGS

- A. The field lines and numbers shall be tufted or inlaid. Refer to sheet PF-1.01 for additional colors.
1. General
 - a) The final field markings shall meet the Parlier Unified School District colors as shown on the drawings.
 - b) Parlier Unified School District to make the final determination of all colors, etc.
 2. Field Markings
 - a) FOOTBALL: These line-markings to be White.
 - b) SOCCER: These line-markings to be Yellow.
 - c) All line widths per NFHS standards.

3.8 SPORTS EQUIPMENT INSTALLATION

- A. Refer to Section 11 68 00 – Athletic Field Equipment for additional sports equipment.

3.9 CLEAN UP

- A. At the end of each day, remove all scraps and other debris created by the synthetic turf installation from the playing field area.
- B. At the end of turf installation and just before the punch list, the Playing Field Contractor must use a magnetic device/equipment to remove all metallic materials from the field caused by construction.
- C. Remove all surplus excavated material not required for filling and backfilling, trash, and debris and dispose of it off the Parlier Unified School District property at the Playing Field Contractor's expense.
- D. Leave the premises and work in a clean, satisfactory condition.
- E. Drainage structures shall be free and cleaned, trash baskets emptied, and trenches flushed with water before turning over the project to the Parlier Unified School District.

3.10 PROTECTION

- A. Protection of materials and work shall be the responsibility of the Playing Field Contractor during installation and through acceptance/substantial completion. All material damaged before acceptance shall be replaced at no additional cost to the Parlier Unified School District.

END OF SECTION - 32 25 42

SECTION 33 46 00.1 - PLAYING FIELD SUB-DRAINAGE SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall furnish all the skilled labor, materials, equipment, fuel, facilities, transportation, and specialized services to complete drainage and related work as shown on contract documents. The Contractor is fully responsible for all the necessary quantities to construct the full subsurface drainage collection system in accordance with the contract documents.
- B. Work Included: The general extent of drainage piping and structures are shown on the drawings and include, but are not necessarily limited to, the following:
 - 1. Nyloplast Drainage Basins and Covers.
 - 2. Geotextile Filter Fabric.
 - 3. Impermeable Liner.
 - 4. Solid Drainage Pipe and Connections.
 - 5. Perimeter Perforated or Slotted Drainage Pipe, and Connections.
 - 6. Playing Field Lateral Slotted Drainage Pipe, Associated Fittings, and Connections.
 - 7. ACO Trench Drain System.

1.2 SUBMITTALS FOR REVIEW

- A. Product Data: The Contractor shall provide all shop drawing data indicating pipe sizes, types of pipes, pipe fittings, pipe inverts, rims, each drainage basin, filter fabric, impermeable liner, and stormwater appurtenances for review and approval prior to ordering any material or installation of materials. The Contractor is fully responsible for all quantities of materials necessary to construct a fully operational sub-drainage system.

1.3 SUBMITTALS FOR INFORMATION

- A. The Contractor shall follow the Manufacturer's Installation Instructions: Indicate special procedures required to install products specified.
- B. Manufacturer's Certificate: The Contractor must certify that products meet or exceed all specified requirements.

1.4 SUBMITTALS AT PROJECT CLOSEOUT

- A. The Contractor shall provide signed and sealed as-built drawings for all pipe lengths, pipe sizes, connections, manholes, catch basins, cleanouts, and all invert elevations. The Contractor shall retain a professional land surveyor licensed in the State of California to prepare the signed and sealed as-built documents. The signed and sealed document shall be submitted to the Field Designer, Architect, for review and approval.

PART 2 - MATERIALS

2.1 CEMENT MORTAR:

- A. Mortar shall be composed of one (1) part of Portland cement and two (2) parts sand by volume.

2.2 NYLOPLAST DRAINAGE BASINS AND RIMS:

- A. Nyloplast Drainage Basin (or approved equivalent) for use with ADS N-12 ST piping perimeter perforated and slotted piping drainage systems. Solid covers shall be cast iron or equal with a 30 MIL PVC impermeable liner placed over the top of the solid cast iron cover.

2.3 GEOTEXTILE FABRICS:

- A. Geotextile Filter Fabric shall be Mirafi 140N or approved equivalent.

2.4 IMPERMEABLE LINER:

- A. 30 MIL PVC impermeable liner for Nyloplast Drainage Basin cast iron covers.

2.5 SOLID DRAINAGE PIPE AND CONNECTIONS:

- A. ADS N-12 ST SOLID (HDEP) PIPE (per ASTM F2648) shall have a smooth interior and annular exterior corrugations, 4 - through 60-inch (100 to 1500 mm) shall meet ASTM F2648 with Manning's "n" value for use in design shall be 0.012. The Contractor shall review the civil engineering plans prepared by others. In the event, any conflict existing between the civil engineering outfall drainage structure and the playing field outfall connection. The Contractor shall notify the Field Designer, Architect, Parlier Unified School District Project Manager immediately before ordering any materials and commencement of any work.

2.6 PERIMETER PERFORATED OR SLOTTED DRAINAGE PIPE, AND CONNECTIONS:

- A. ADS N-12 ST PERFORATED / SLOTTED pipe (per ASTM F2648) shall have a smooth interior and annular exterior corrugations, 4 - through 60-inch (100 to 1500 mm) shall meet ASTM F2648 with Manning's "n" value for use in design shall be 0.012. Install system-engineered components including, but not limited to, bends, split couplings, side outlets, end caps, end outlets, wyes, Insert-A tees, saddles, and tees.

2.7 PLAYING FIELD LATERAL SLOTTED DRAINAGE PIPE, ASSOCIATED FITTINGS, AND CONNECTIONS:

- A. ADS 1"x12" FLAT PANEL SLOTTED PIPE OR MULTIFLOW, without geotextile fabric and with narrow slotted width. Install system-engineered components including, but not limited to, end caps, Insert-A-tees hard connections, etc. Or approved equivalent product. The Contractor shall remove all geotextile fabric from flat panel slotted pipe prior to installation. (If applicable)

2.8 ACO 4000 TRENCH DRAIN SYSTEM: (or approved equivalent product)

- A. Non-Slope Channel System: 4002 Constant Depth Channel, Part # 06562, Length in (mm) 39.37 (1000), Overall Depth in (mm) 5.65 (143), Weight lbs. 32.9.
- B. In-Line Catch Basin, Part # 05620 and In-Line Plastic Trash Basket, Part # 01498
- C. Grate System: Longitudinal Plastic, Type 494Q – Black, Part # 97393, ADA Compliance.
- D. The Contractor shall install the complete channel drain system in accordance with the manufacturer's requirements.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS:

- A. Examine the areas and conditions under which the work of this Section will be performed. Correct conditions detrimental to the timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- B. The Contractor shall verify existing pipe inverts elevations for storm drain construction before site work. Work for storm drain installation shall begin at the downstream connection point. This will allow for necessary adjustments to be made before the installation of the entire line. If the Contractor fails to begin at the downstream connection point and works up-stream, The Contractor shall be responsible for necessary field adjustments and costs.

- C. Uncover and expose existing utility and sewer lines where they are to be crossed above or below by new work being constructed to verify grades and to ensure sufficient clearance. Water lines crossing sewer lines shall have a minimum 24" vertical clearance. Other lines should have sufficient clearance to avoid damage or disruption of service. The pipe shall not be installed until crossings have been verified for clearance. If the Contractor fails to follow this procedure, the Contractor will be solely responsible for all the extra work or material required if modifications to the design are necessary.
- D. The Contractor shall take special care in locating and protecting existing utilities. Verify with the Parlier Unified School District Project Manager all existing utilities to be relocated or removed or utilities to be preserved. Correct all damage done to existing utilities at no cost to the owner.

3.2 FIELD MEASUREMENTS:

- A. Make necessary field measurements to assure a precise fit in accordance with the approved contract documents.

3.3 GENERAL CONSTRUCTION

A. TRENCHES:

1. Unless otherwise shown, provide separate trenches for pipelines. The minimum cover shall be twelve inches (12").
2. Lay pipe in open trenches except when the engineer of record or owner's representative permits directional boring or tunneling.
3. Excavate trenches to widths no greater than necessary for proper installation of the work in accordance with the approved pipe manufactures specifications.
4. Material excavated for utility trenches shall be non-classified and shall include earth or other material encountered. The contract price is understood to cover the removal of such materials to depth and extents indicated in contract documents and necessary to complete the work.
5. Grade bottom of trenches evenly in preparation for placement of bedding and to ensure uniform bearing for the full length of pipes. Cut holes as necessary for joints and joint making. Excavate cemented gravel, old masonry, or other hard material to at least six inches (6") below pipe points. Refill such space and other cuts below grade with sand or fine gravel firmly compacted.
6. Install impermeable liner or geotextile filter fabric according to the manufacturer's instruction at the bottom of the trench and along all sides and extend 12" beyond the top of the trench.
7. Sheet and brace trenches remove water as necessary to fully protect workers and adjacent structures and permit proper installation of the work. Comply with local regulations or, in the absence thereof, with provisions of the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc. Under no circumstances lay pipe or install appurtenances in water and keep trenches free from water until pipe joint material has hardened.
8. The presence of groundwater in the soil or the necessity of sheeting or bracing trenches shall not constitute a condition for which any extra remuneration may be claimed.

B. PIPE INSTALLATION:

1. General: Carefully examine each pipe prior to placing it in the trench.
 - a. Promptly set aside defective pipe and damaged pipe.
 - b. Identify all product defects. Check for all pipes for slotted and perforations
 - c. Do not install a defective pipe or damaged pipe.
 - d. Continually remove extraneous material from the pipe.
 - e. Do not place the pipe in water, nor place when trench or weather is unsuitable for such work.
2. Pipe of size and type noted on drawings shall be laid on a firm bearing, aligned, and graded in direction of flow. Suitable fittings shall be provided where various lines connect and where changes in pipe sizes occur. Connections shall be made to catch basins, etc. as indicated.
3. Commence pipe installation at the lowest point in the system and install pipe with bell end up grade. Clean interior and joint surfaces and test pipe for soundness before lowering the pipe into the trench. Lay pipe in straight lines and on uniform grades between points where changes in alignments or grades are shown. Bed and pipe barrel uniformly. Check lines and invert grades of each pipe from top line carried on batter boards not over twenty-five feet (25') apart. Fit pipes to form a smooth uniform invert. Keep a stopper in pipe mouths when pipe installation is not in progress.
4. Flushing: Flush closed lines with water in sufficient volume to obtain free flow through each line. Remove obstructions and correct defects discovered. Remove silt and trash from drainage basins and pipes prior to inspection of work.
5. HDPE pipes shall be installed per manufacturers' recommendations and the following minimum criteria: HDPE pipes shall not be placed directly on rock or other rigid materials.
6. HDPE pipes shall be laid and joined in accordance with generally accepted practice and following provisions to be suitable for purposes intended.
 - a. Necessary facilities shall be provided for lowering and properly placing pipe sections into trenches.
 - b. The piping shall be laid to line, grade, and slope with sections closely joined.

C. BACKFILL:

1. Backfill trenches only after piping has been inspected, tested and the location of pipe and appurtenances has been recorded.

D. FILTER FABRIC INSTALLATION:

1. Overlap joints a minimum of twelve (12) inches. Joints shall be overlapped in the direction the stone aggregate is to be spread.
2. Joints shall be securely held in place in accordance with the liner manufacturer's recommendations. Joint bonding may be delayed until aggregate placement is completed to minimize joint stress.
3. Place a suitable amount of ballast on the filter fabric to prevent movement by wind. The ballast shall be in a form that will not damage the filter fabric.
4. Direct traffic loading on filter fabric will not be allowed.
5. Overlapping additional filter fabric and jointing shall be in accordance with the manufacturer's recommendations. Repair punctured or torn fabric.

6. The filter fabric must completely cover the entire sub-grade under class II and gravel drainage aggregates and inside all pipe trenching. The filter fabric must be installed over the entire finished topping stone prior to installation of drainage/shock pad. Please refer to additional playing field construction details for more information.

3.4 JOINTS

A. GENERAL:

1. Before making pipe joints, clean and dry surfaces of the pipe to be joined.
2. Use lubricants, primers, and adhesives recommended by the pipe manufacturer.
3. Place, fit, joint, and adjust joints to obtain the degree of water tightness required.

B. FLEXIBLE WATERTIGHT JOINTS:

1. Equal materials may be used when specifically approved in advance by the Architect or owner's representative.
2. Install gaskets and joint materials in accordance with manufacturer's recommendations.
3. Protect from the sun, blowing dust, and other deleterious agents.
4. Align the pipe with a previously installed pipe and pull joints together. If a gasket or joining material becomes loose and can be seen through exterior joint recess when the joint is pulled to within 1" of closure, remove the pipe and remake the joint.
5. Inspect gaskets and replace loose and improperly affixed gaskets and joining materials.

3.5 PIPING INSPECTING:

- A. Provide the necessary personnel and equipment, and perform tests required to demonstrate that the work of this section has been completed in accordance with specified requirements.
- B. Do not allow or cause any work of this section to be covered up or enclosed until after it has been inspected, and as-builts have been approved by the Field Designer or Architect.

3.6 RECORD / AS-BUILT DRAWINGS:

- A. The Contractor will provide and keep up-to-date completed "Record Drawing" records on blue-line prints that show every change from the original contract documents, including exact locations, sizes, and kinds of equipment. "Record Drawings" set shall be kept on the job site and used only as a record set.
- B. These drawings will also serve as work progress sheets, and the Contractor shall make neat and legible annotations thereon daily as the work proceeds, showing the work as actually installed. These drawings shall be available for inspection and shall be kept in a location designed by the engineer of record or owner's representative.
- C. As-Built surveys must be signed and sealed by a Licensed Professional Surveyor in the State of California submitted to the Field Designer, Architect, and the Parlier Unified School District Project Manager for final approval prior to the installation of playing field gravel material being placed over entire completed sub-surface drainage collection system.

END OF SECTION - 33 46 00.1

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SECTION 33 47 00 - SYNTHETIC TRACK SURFACING

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplies necessary for the surfacing in accordance with these specifications indicated on the drawings.
- B. Running Track Resurfacing:
 - 1. The Parlier Unified School District has requested the construction of a new 9 lane running track with a 1-meter safety lane. The scope of work shall include the removal of unsuitable soils under the running track, compacted subgrade, compacted base layer, installation of virgin asphalt mix, rubberized track surfacing material in accordance with the approved track surfacing manufacturer recommendations. The Contractor shall be fully responsible for all the necessary running track lane markings in accordance with the NFHS.
- C. Running Track Surfacing Product:
 - 1. The based bid product manufacturer for the rubberized running track and field event surfacing shall be Rekortan BSS or approved equivalent.
 - 2. The above information is solely provided to assist the Contractor in understanding the magnitude of the scope of work being requested. The Contractor should not consider the above information provided as the complete summary of work. The Contractor shall review the contract design documents and written specifications for the complete scope of the work.
 - 3. Rekortan® WBS BSS – A 13 mm, World Athletics certified, polyurethane bound, layered, impermeable running track surface with an aliphatic, water-based structural spray finish, or approved equivalent.

1.2 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the World Athletics (WA), the National Collegiate Athletic Association (NCAA) or the National Federation of State High School Associations (NFHS).

1.3 SUBMITTALS AND SUBSTITUTIONS

- A. Requests for deviations or substitutions from the specifications must be made in writing seven days prior to the bid date. Complete product data including specifications, application rates, mixing instructions and a sample shall be sent with the request to the district and/or its agent for an evaluation. Alternatives will be allowed only by addendum.
 - 1. Submit a set of manufacturer's product data sheets including installation guidelines and maintenance guidelines.
 - 2. Submit a track sample that is representative of the product being installed.
 - 3. Submit Safety Data Sheets (SDS) for all individual components of the system to be installed.

1.4 QUALITY ASSURANCE

- A. The track surface installer shall be authorized by Manufacturer and possess a minimum of five (5) years' experience installing Rekortan® systems.
- B. The supervisor of the installing company must have five (5) years' experience surfacing Rekortan® systems and must have installed a minimum of ten (10) World Athletics approved track systems within the last three (3) years.
- C. The manufacturer must offer a minimum of four (4) World Athletics certified track systems.

- D. Submit evidence that the synthetic surfacing contractor is a member of the American Sports Builders Association (ASBA).
- E. All material components must be procured from manufacturers, a single source. No substitutes allowed without written approval from manufacturers.
- F. All polyurethanes used must be manufactured by an ISO 9001 and ISO 14001 Certified Company. Manufacturer's ISO 9001 and ISO 14001 certificate must accompany bid.

1.5 SITE CONDITIONS

- A. Weather: Surfacing shall not begin if rain is imminent, if gusting winds are occurring or when the threat of freezing exists within 24 hours.
- B. Site: During any surfacing and striping, sprinkler systems must be shut off or controlled so that no water falls on the track or event area surfaces. Other trades and school district personnel must stay off the wet or curing surface.
- C. Only mix and apply when meeting manufacturers' recommended guidelines.
- D. The General Contractor shall provide temporary barriers as required to prevent public entry to construction areas and to protect adjacent properties from damage during construction operation.

1.6 WARRANTY

- A. Provide manufacturers standard five (5) year warranty to the Parlier Unified School District.

PART 2 - MATERIALS

2.1 SUPPLIER:

Advanced Polymer Technology/ Manufacturer
109 Conica Lane
Evans City, PA 16033
724-452-1330

2.2 MATERIALS:

- A. Rekortan® WBS BSS - A 13mm, impermeable water-based spray coat track system. The first layer consists of a black mat of rubber granules bound in Rekortan® polyurethane. The second layer is a seal coat using Rekortan® two-component polyurethane sealer. The surface layer is an aliphatic, water-based Rekortan® coating mixed with rubber granules and spray applied to provide a structural topcoat.

Materials include:

- 1. Primer
- 2. Black Rubber
- 3. Rekortan® Polyurethane Binder
- 4. Two Component Rekortan® Polyurethane Sealer
- 5. Manufacture approved Rubber graded to .5-1.5mm or .5-2mm
- 6. One Component Rekortan® Aliphatic, Water-based Structural Spray

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. The General Contractor shall verify that all asphalt/ concrete paving meets all dimensional accuracy, strength, and compaction. Notify owner of any deficiencies. Recommended compaction of asphalt and subbase is 95%. For further guidance on asphalt requirements, please consult the most recent ASBA running track construction manual.
- B. The General Contractor shall verify that all concrete work meets all required tolerances and notify the owner of any deficiencies. No curing compounds are allowed. The manufacturer requires that a proven heavy duty vapor barrier be installed under the concrete slab. The completed concrete substrate shall meet the RH (Relative Humidity) value of 75% or less of dryness.

The completed asphalt or concrete substrate shall meet the industry tolerance standards of evenness ~ 1/4" in 10', per the latest American Sports Builders Association construction manual, 4.2.3f Asphalt Acceptance... "The surface course of asphalt shall be installed so that on a localized level, there shall be no bumps or depressions beneath a 10' straight edge exceeding 1/4 of an inch." For further guidance on requirements, please consult the most recent ASBA running track construction manual.

- C. Upon completion of the asphalt paving, it is the responsibility of the paving contractor to water flood test the surface with the use of a water truck. If after 30 minutes on a 70o F day, depressions are evident in depth more than 1/4" the paving contractor, track surfacing contractor and the owner's representative will determine the best method of correction.
- D. The entire surface shall be clean and free of all dirt, oil, grease or any other foreign residue. It is the responsibility of the General Contractor to ensure that the surface is thoroughly clean in all areas of the new and/or existing asphalt or concrete base as necessary to ensure adhesion of the track surface.
- E. Minimum curing time for base prior to beginning of surfacing is 14 days for new asphalt paving and 28 days for new concrete. No concrete curing compounds are allowed.

3.2 PRODUCT AND MATERIAL DESCRIPTION:

- A. Rekortan® WBS BSS - A 13 mm, impermeable paved mat with a structural spray finish. Its base layer consists of a black mat of rubber granules bond in a Rekortan® polyurethane binder that is sealed using a two-component Rekortan® polyurethane sealer. The top layer is a mixture of the aliphatic, water-based Rekortan® one component coating and colored EPDM rubber that is structurally sprayed
- B. Primer: Proper Rekortan® Primer to be used based on substrate (concrete or asphalt).
- C. Base mat Rubber: The base mat rubber shall be specifically graded. It is to be dry and in sealed bags
- D. Polyurethane Binder: The base mat shall be bound by a moisture-cured, Rekortan® polyurethane compatible with the base mat rubber. No asphaltic emulsions or epoxies are allowed in the base mat. Install the base mat with a specially designed track-paving machine to an average depth of 11 mm. No machine sprayed base mat systems will be allowed.
- E. Two-Component Polyurethane: The seal layer shall be made from a two- component Rekortan® full pour polyurethane sealer.
- F. Rubber: Manufacture approved rubber graded to .5-1.5mm or .5-2mm. It is to be dry and in sealed bags.
- G. One Component Aliphatic Water-based Structural Spray: The sealed base mat shall be coated by an aliphatic, water-based, pigmented, one component Rekortan® polyurethane structural spray.

3.3 APPLICATION PROCEDURES:

- A. The entire asphalt or concrete track surface shall be clean and free of dirt, oil, grease or any other residue upon arrival of the installation team. Any dirt, etc. shall be pressure washed off the base by the general contractor.
- B. Prime entire surface area with a compatible Rekortan® polyurethane primer. Mask and protect adjacent structures, as required. Primer shall dry to a tack- free condition prior to beginning next application. Do not allow primed surface to become contaminated by rain, dust, debris, etc.
- C. Mix the binder and granules until all rubber is thoroughly coated transport onto to the track and apply using a paving machine that is specifically designed for this type of application. Apply to an average of 11 mm thickness.

- D. Mix the two component Rekortan® polyurethane two component sealer and apply to the base mat by means of spreading the material with a rubber squeegee to seal off the mat.
- E. Top Layer: After the seal layer has cured, mix the water-based structural spray and rubber until thoroughly coated. The mixture should be sprayed in two separate applications. Apply the second coat, in an opposite direction as to the first. Apply specified amounts to achieve proper coverage.

3.4 STRIPING

- A. All line marking paint shall be compatible and approved for the synthetic surfacing. Only an experienced track striping specialist shall perform the striping.

END OF SECTION - 33 47 00