

ADDENDUM #2

DATE: May 13, 2025

TO CONTRACT DOCUMENTS ENTITLED:

PROJECT MANUAL FOR:

TAYLOR STADIUM TURF REPLACEMENT

PROJECT NUMBER: CP252171

PREPARED FOR:

THE CURATORS OF THE UNIVERSITY OF MISSOURI

CONSULTANT:

Crockett Engineering Consultants
1000 W. Nifong Blvd, Bldg #1
Columbia, Missouri 65203

Drawings and Specifications for the above noted project and the work covered thereby are herein modified as follows, and except as set forth herein, otherwise remain unchanged and in full force and effect:

GENERAL INFORMATION:

1. Revised Artificial Grass Specifications.
2. Revised Striping Plan Legend to show turf types.
3. Revised Detail "Synthetic Turf Edge" on Sheet CE 8.0.

SPECIFICATION CHANGES:

1. 32 1816 – ARTIFICIAL GRASS

DRAWING CHANGES:

1. SHEET CE 0.0 – Sheet Index
2. SHEET CE 7.0 – Revised Legend for turf types
3. SHEET CE 8.0 – Revised Synthetic Turf Edge Detail

END OF ADDENDUM #2

SECTION 32 1816

ARTIFICIAL GRASS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Furnish all labor, material, tools and equipment necessary to install artificial grass as indicated on the plans and as specified herein; including components and accessories required for a complete installation, including but not limited to:
 - a. Acceptance of prepared sub-base.
 - b. Coordination with related trades to ensure a complete, integrated, and timely installation: Aggregate base course, sub-base material (tested for permeability), grading and compacting, piping and drain components; as provided by the respective trade.

1.3 RELATED SECTIONS

- A. Section 31 10 00 – Site Clearing
- B. Section 31 20 00 – Earth Moving
- C. Section 33 46 00 – Subdrainage

1.4 REFERENCE STANDARDS

- A. FM Factory Mutual
 - a. P7825 – Approval Guide; Factory Mutual Research Corporation: current edition
- B. ASTM – American Society for Testing and Materials
 - a. D1577 – Standard Test Method for Linear Density of Textile Fiber
 - b. D5848 – Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
 - c. D1338 – Standard Test Method for Tuft Bind of Pile Yarn Floor Covering
 - d. D1682 – Standard Method of Test for Breaking Load and Elongation of Textile Fabrics
 - e. D5034 – Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
 - f. F1015 – Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
 - g. D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 - h. D1907 – Standard Test Method for Denier
 - i. F1551 – Standard Test Method for Water Permeability
 - j. F1936 – Standard Test Method for Shock-Absorbing Properties of North American Baseball Field Playing Systems as Measured in the Field

1.5 SUBMITTALS

- A. Comply with Section 01 30 00 – Administrative Requirements. Submit for approval prior to fabrications.
- B. Shop Drawings:
 - a. Indicate field layout; field marking plan and details for the specified sports; i.e., collegiate level baseball; roll/seaming layout; method of attachment, field openings and perimeter conditions.
 - b. Show installation methods and construction indicating field verification conditions, clearances, measurements, terminations, drainage.
 - c. Provide joint submission with related trades when requested by Engineer.
- C. Product Data:
 - a. Submit manufacturer's catalog cut sheets, material safety data sheets (MSDS), brochures, specification, preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
 - b. Submit fiber manufacturer's name, type of fiber and composition of fiber
 - c. Submit data in sufficient detail to indicate compliance with contract documents.
 - d. Submit manufacturer's instructions for installation.
 - e. Submit manufacturer's instructions for maintenance and proper care and preventative maintenance of the synthetic turf system, including markings.
- D. Samples: Submit a synthetic turf sample, 12x12 inches, representing the turf carpet portion of the product proposed for this project.
- E. Product Certification:
 - a. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
 - b. Submit test results indicating compliance with Reference Standards.
- F. Project Record Documents: Record actual locations of seams, drains, and other pertinent Information in accordance with the specifications and general requirements.
- G. Warranties: Submit warranty and ensure that forms have been completed in Owner's name and registered with approved manufacturer.
- H. Submit Bills of Lading/Material Delivery Receipts for synthetic turf infill materials. Bills of lading shall bear the name of the project/delivery address, quantity of materials delivered, source/location of origin of infill materials and/or manufacturer, and date of deliver.
- I. The Turf Vendor shall submit a document holding the owner and it's 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 Vendor or others associated with patents 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.
- J. List of existing installations: Submit list including respective Owner's representative and telephone number.

- K. Testing Certification: Submit certified copies of independent (third-party) laboratory reports on ASTM testing:
 - a. Pile Height, Face Weight & Total Fabric Weight, ASTM D5848.
 - b. Primary & Secondary Backing Weights, ASTM D5848.
 - c. Tuft Bind, ASTM D1335.
 - d. Grab Tear Strength, ASTM D1682 or D5034.
 - e. Water Permeability, ASTM F1551

1.6 QUALITY ASSURANCE

- A. Comply with Section 01 40 00 – Quality Requirements
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The turf contractor and or the turf manufacturer:
 - a. Shall be experienced in the manufacture and installation of infilled synthetic grass turf for a minimum of five years.
 - b. Shall have 200 fields in play for at least two years. Fields shall be 65,000 square feet or more in size.
 - c. Turf manufacturer shall have installed a minimum of 200 fields that are at least 8 years old, which is equal to the respective warranty period.
 - d. Shall have a minimum of 10 installations in the State of Missouri.
 - e. Shall have installed a minimum of 25 NCAA Division 1 game and/or practice fields for baseball.
 - f. The manufacturer must provide real-life data derived from video footage and images supporting claims on the long-range speed, bounce, and line of the ball compared to a natural clay and natural grass surface providing documentation/data at the time of bid
- C. Installer: Company shall specialize in performing the work of this section. The Contractor shall provide competent workmen skilled in this specific type of synthetic grass installation.
 - a. The designated Supervisory Personnel on the project shall be certified, in writing, by the turf manufacturer, as competent in the installation of the turf system.
 - b. Installer shall be certified by the manufacturer and licensed.
 - c. The installer supervisor shall have a minimum of 5 years' experience as either a construction manager or a supervisor of synthetic turf installations.
- D. Pre-Installation Conference: Conduct conference at project site at time to be determined by Engineer and Owner. Review methods and procedures related to installation including, but not limited to, the following:
 - a. Inspect and discuss existing conditions and preparatory work performed under other contracts.
 - b. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Engineer.
- E. The Contractor shall verify special conditions required for installation of the system.
- F. The Contractor shall notify the Engineer of any discrepancies.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 60 00, Product Requirements.

- B. Prevent contact with materials that may cause dysfunction.
- C. Deliver and store components with labels intact and legible.
- D. Store materials/components in a safe place, under cover, and elevated above grade.
- E. Protect from damage during deliver, storage, handling and installation. Protect from damage by other trades.
- F. Inspect all delivered materials and products to ensure they are undamaged and in good condition.
- G. Comply with manufacturer's recommendations.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate the Work with installation of work of related trades as the Work proceeds.
- B. Sequence the Work in order to prevent deterioration of the installed system.

1.9 WARRANTY AND GUARANTEE

- A. See Section 01 78 00 – Closeout Submittals, for Additional Warranty Requirements.
- B. The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf for a period of eight (8) years from the date of substantial completion. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the Owner or the manufacturer. The warranty shall be fully third-party insured; prepaid for the entire 8-year term and be non-prorated. As concerns the designated high-traffic areas, which include, but are not limited to the home plate, pitcher's mound, pitcher's lane, catcher's box, batting cage and bullpen areas, the foregoing Warranty does not apply. Notwithstanding anything contained herein, the base areas and slide zones, which also constitute as high traffic areas, shall be covered by this Warranty, except that the applicable Warranty period shall be limited to a two (2) year Manufacturer's Warranty. The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. The insurance policy must be underwritten by an "AM Best" A rated carrier and must reflect the following values:
 - a. Pre-paid 8-year insured warranty from a single source.
 - b. Maximum per claim coverage amount of \$20,000,000.
 - c. Minimum of twenty million dollars (\$20,000,000) annual.
 - d. Must cover full 100% replacement value of total square footage installed, minimum of \$7.00 per square foot (in case of complete product failure, which will include removal and disposal of the existing surface.)

- e. Provide a sample copy of insured, non-prorated warranty and insurance policy information.
- f. Policy cannot include any form of deductible to be paid by the Owner.

1.10 MAINTENANCE SERVICE

- A. Contractor shall train the Owner's facility maintenance staff in the use of the turf manufacturer's recommended maintenance equipment.
- B. Manufacturer must provide maintenance guidelines to the facility maintenance staff.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. The basis of design for this project will be as follows. The basis for design shall represent the required product represented in Base Bid package. The following products have been pre-approved.
 - a. FieldTurf USA
175 N. Industrial Blvd
Calhoun, GA 30701
P: 800-724-2969
Base bid: Doubleplay
 - b. GeoSurfaces, Inc.
7080 St. Gabriel Ave.
St. Gabriel, LA 70776
P: 877-663-5968
Base bid: Pivot by Tencate
 - c. Shaw Sports Turf
185 South Industrial Boulevard
Calhoun, GA 30701
P: 515-865-3645
Base bid: Truhop
 - d. AstroTurf Corporation
2680 Abutment Road
Dalton, GA 30721
P: 800-723-8873
Base bid: RootZone Diamond Series

2.2 MATERIALS AND PRODUCTS – INFIELD CLAY AREA – BROWN BASE PITS AND CLAY AREAS SHOWN IN GREEN OF A STANDARD BASEBALL FIELD LAYOUT – PRODUCT “A” IN LEGEND

- A. Artificial grass system materials shall consist of the following:
1. Carpet made of polyethylene fibers tufted into a perforated backing.
Infill: Controlled mixture of graded sand and olive cores (or approved equal) which partially cover the carpet. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass.

- B. The installed artificial grass slit-film turf shall have the following properties:

Standard	Property	Specification
ASTM D1907	Yarn Structure – A	Slit-Film
	Yarn Denier - A	10,800
	Yarn Structure – B	Thatch
	Yarn Denier – B	5000
ASTM D5823	Pile Height	1.6"
ASTM D5793	Stitch Gauge	3/8"
ASTM D5848	Pile Weight	50oz/square yard
ASTM D5848	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	20+oz/square yard
ASTM D5848	Total Weight	77+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+ lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM F1551	Carpet Permeability	>40 inches/hour
	Sand Infill Component	3.5lbs/square foot
	Olive Cores Infill Component (or approved equal)	1.5lbs/square foot
	Total Product Weight	797oz/square yard
<i>Variation of +/- 5% on above listed properties is within normal manufacturing tolerances</i>		

- C. Carpet Rolls shall be 15' wide rolls.

- D. Backing:

1. Primary backing shall be a double-layered polypropylene fabric.
2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
3. Perforated (with punched holes), backed carpet are acceptable.

- E. Infill materials shall be approved by the manufacturer.

1. Infill shall consist of a resilient layered granular system, comprising selected and graded sand and olive cores (or approved equal).
2. Artificial Grass products without granulated olive cores (or approved equal) and sand will not be acceptable.

- F. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

- G. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.3 MATERIALS AND PRODUCTS – BATTERS/CATCHERS BOXES AND MOUND LANDING STRIP – ON GAME FIELD & BULLPEN MOUNDS/CATCHER'S AREA

- A. Artificial grass turf system materials shall consist of the following:
1. Carpet made of polyethylene fibers tufted into a perforated backing.
 2. Infill: Controlled mixture of graded sand and SBR Rubber which partially cover the carpet.
 3. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass turf.

- B. The installed artificial grass slit-film turf shall have the following properties:

Standard	Property	Specification
ASTM D1907	Yarn Structure – A	Slit-Film
	Yarn Denier - A	10,800
	Yarn Structure – B	Thatch
	Yarn Denier – B	5000
ASTM D5823	Pile Height	1.6"
ASTM D5793	Stitch Gauge	3/8"
ASTM D5848	Pile Weight	90oz/square yard
ASTM D5848	(Mound Landing Strip and Batters Boxes)	
	Pile Weight	50oz/square yard
ASTM D5848	(Mound Surrounds and Home Plate Circle)	
	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	20+oz/square yard
ASTM D5848	Total Weight	117+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+ lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM F1551	Carpet Permeability	>40 inches/hour
	Sand Infill Component	3.5lbs/square foot
	SBR Rubber Infill Component	1.25lbs/square foot

Variation of +/- 5% on above listed properties is within normal manufacturing tolerances

- C. Carpet Rolls shall be 15' wide rolls.

- D. Backing:

1. Primary backing shall be a double-layered polypropylene fabric.
2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
3. Perforated (with punched holes), backed carpet are acceptable.

- E. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

- F. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.4 MATERIALS AND PRODUCTS – OUTFIELD AND FOUL TERRITORY GREEN GRASS AREA- PRODUCT "C" IN LEGEND

- A. Artificial grass turf system materials shall consist of the following:

1. Carpet made of slit-film and monofilament polyethylene fibers tufted together into each individual stitch, into a perforated backing. Alternating row monofilament and slit-film carpet constructions are not permitted.

2. Infill: Controlled mixture of graded sand and SBR rubber crumb that partially covers the carpet.
3. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass slit-film/monofilament turf.

B. The installed artificial grass slit-film/monofilament turf shall have the following properties:

<u>Standard</u>	<u>Property</u>	<u>Specification</u>
ASTM D1907	Pile Yarn Type	UV-resistant polyethylene
	Yarn Structure – A	Slit-Film
	Yarn Denier - A	5,000
	Yarn Structure – B	Ridged Monofilament
	Yarn Denier – B	14,500
ASTM D5823	Pile Height	2"
ASTM D5793	Stitch Gauge	3/4"
ASTM D5848	Pile Weight	39+oz/square yard
ASTM D5848	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	16+oz/square yard
ASTM D5848	Total Weight	62+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM F1551	Carpet Permeability	>40 inches/hour
	Sand Infill Component	5.4lbs/square foot
	SBR Infill Component	1.5lbs/square foot

Variation of +/- 5% on above listed properties is within normal manufacturing tolerances

C. Carpet Rolls shall be 15' wide rolls.

D. Backing:

1. Primary backing shall be a double-layered polypropylene fabric.
2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
3. Perforated (with punched holes), backed carpet are acceptable.

E. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

F. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.5 MATERIALS AND PRODUCTS – INFIELD GRASS DIAMOND AREA - PRODUCT “B” IN LEGEND

A. Artificial grass turf system materials shall consist of the following:

1. Carpet made of slit-film and monofilament polyethylene fibers tufted together into each individual stitch, into a perforated backing. Alternating row monofilament and slit-film carpet constructions are not permitted.
2. Infill: Controlled mixture of graded sand and SBR rubber crumb that partially covers the carpet.
3. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass slit-film/monofilament turf.

The installed artificial grass slit-film/monofilament turf shall have the following properties:

<u>Standard</u>	<u>Property</u>	<u>Specification</u>
ASTM D1907	Pile Yarn Type	UV-resistant polyethylene
	Yarn Structure – A	Slit-Film
	Yarn Denier - A	5,000
	Yarn Structure – B	Ridged Monofilament
	Yarn Denier – B	14,500
ASTM D5823	Pile Height	2"
ASTM D5793	Stitch Gauge	3/4"
ASTM D5848	Pile Weight	39+oz/square yard
ASTM D5848	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	16+oz/square yard
ASTM D5848	Total Weight	62+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM F1551	Carpet Permeability	>40 inches/hour
	Sand Infill Component	3.65lbs/square foot
	SBR Infill Component	2.6lbs/square foot

Variation of +/- 5% on above listed properties is within normal manufacturing tolerances

C. Carpet Rolls shall be 15' wide rolls.

D. Backing:

1. Primary backing shall be a double-layered polypropylene fabric.
2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
3. Perforated (with punched holes), backed carpet are acceptable.

E. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

F. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.6 MATERIALS AND PRODUCTS – WARNING TRACK - PRODUCT “D” IN LEGEND

A. Artificial grass turf system materials shall consist of the following:

1. Carpet made of slit-film polyethylene fibers tufted into a perforated backing.
2. Infill: Controlled mixture of graded sand and SBR rubber crumb that partially covers the carpet.
3. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass slit-film turf.

B. The installed artificial grass slit-film turf shall have the following properties:

<u>Standard</u>	<u>Property</u>	<u>Specification</u>
	Pile Yarn Type	UV-resistant polyethylene
	Yarn Structure	Slit-Film

ASTM D1907	Yarn Denier - A	10,800
ASTM D5823	Pile Height	2"
ASTM D5793	Stitch Gauge	3/8"
ASTM D5848	Pile Weight	42+oz/square yard
ASTM D5848	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	16+oz/square yard
ASTM D5848	Total Weight	65+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM F1551	Carpet Permeability	>40 inches/hour
	Sand Infill Component	8lbs/square foot
	Turf Infill Component	0.75lbs/square foot

Variation of +/- 5% on above listed properties is within normal manufacturing tolerances

C. Carpet Rolls shall be 15' wide rolls.

D. Backing:

1. Primary backing shall be a double-layered polypropylene fabric.
2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
3. Perforated (with punched holes), backed carpet are acceptable.

E. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

F. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.7 QUALITY CONTROL IN MANUFACTURING

A. The manufacturer shall own and operate its own manufacturing plant in North America. Both tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer. Outsourcing of either is unacceptable.

B. The manufacturer shall have full-time certified in-house inspectors at their manufacturing plant that are experts with industry standards.

C. The manufacturer's full-time in-house certified inspectors shall perform pre-tufting fiber testing on tensile strength, elongation, tenacity, denier, shrinkage, and twist i.e., turns per inch, upon receipt of fiber spools from fiber manufacturer.

D. Primary backing shall be inspected by the manufacturer's full-time certified in-house inspectors before tufting begins.

E. The manufacturer's full-time in-house certified inspectors shall verify "pick count", yarn density in relation to the backing, to ensure the accurate amount of face yarn per square inch.

F. The manufacturer's full-time, in-house, certified inspectors shall perform turf inspections at all levels of production including during the tufting process and at the final stages before the turf is loaded onto the truck for delivery.

G. The manufacturer shall have its own, in-house laboratory where samples of turf are retained and analyzed, based on standard industry tests, performed by full-time, in-house, certified inspectors.

- H. The manufacturer must have ISO 9001, ISO 14001 and ISO 45001 certifications demonstrating its manufacturing efficiency with regards to quality, environment and safety management systems.

2.8 QUALITY CONTROL IN FIBER MANUFACTURING

- A. Synthetic turf fiber must perform in a uniform manner or manufacturer quality control issues in the extrusion processes will be suspected. Linear Low Density Polyethylene Polymer ("LLDPE") and batch additives obtained from a reputable manufacturer are required to manufacture superior quality yarn. The master batch formula must include a UV stabilizer package added to its polymer base.
- B. The LLDPE used to make the artificial grass fiber needs to be a "C6" LLDPE which contains 6 carbon atoms and 12 hydrogen atoms; A C6-based LLDPE produces strong and resilient artificial grass fibers over prolonged periods and thus should provide the basis for long term performance of the system.
- C. Adequate UV protection is essential to the long-term durability of any artificial grass fiber. Typically, stabilizer packages for polyethylene fibers have three components that protect the fibers from degradation: (1) primary antioxidants; (2) secondary antioxidants; and (3) UV stabilizers (i.e., hindered amine light stabilizers ("HALS")). HALS are a particularly important aspect of the stabilizer package. A typical HALS concentration is 10,000 ppm. More developed HALS molecules are methyl stabilized to prevent from degradation.
- D. The fiber must contain both a short-term and a long-term active ingredient for protection during the extrusion process and when installed in the field. The pigments used in the fiber must be UV stable and heavy metal free.

2.9 FIELD GROOMER AND SWEEPER

- A. Supply (1) one field groomer and sweeper tools as part of the work.
- a. Field Groomers shall include a towing attachment compatible with a field utility vehicle.
 - b. Field Groomer shall be as recommended by the turf manufacturer.
 - c. Field Sweepers shall include a towing attachment compatible with a field utility vehicle.
 - d. Field Sweeper shall be as recommended by the turf manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that all sub-base leveling is complete prior to installation.
- B. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to beginning of the installation.
- a. Acceptance is dependent on the Owner's test results indicating compaction is within the manufacturer's specification. It shall be the responsibility of the turf installer to provide as many field inspections as may be required to examine the base and sub-base prior to approval. It shall be the responsibility of the Turf installer to provide any necessary inspections to ensure that base and subbase meet the manufacturer's planarity requirements prior to installation. The turf installer shall provide a written report of any defects to be corrected by the grading contractor, and the turf

manufacturer shall re-inspect any remediated work prior to final sign-off of the base and sub-base materials for each athletic field.

- b. The surface shall be accepted by the Installer as “clean” as installation commences and shall be maintained in that condition throughout the process.
- C. Compaction of the aggregate base shall be 95%, in accordance with ASTM D1557 (Modified Proctor procedure); and the surface tolerance shall not exceed 1/4 inch over 10 feet and 1/2 inch from design grade.
- D. Correct conditions detrimental to timely and proper completion of Work.
- E. Do not proceed until unsatisfactory conditions are corrected.
- F. Beginning of installation means acceptance of the existing conditions by the turf installer.

3.2 PREPARATION

- A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.
- B. Sub-base acceptance shall be subject to receipt of test results (by others) for compaction that sub-base is in compliance with the manufacturer's specifications and recommendations.
- C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.
- D. When requested by the Engineer, installed sub-base shall be tested for porosity prior to the installation of the slit-film/monofilament turf.

3.3 INSTALLATION - GENERAL

- A. The installer shall have at least one certified field builder (CFB) on staff.
- B. The installation shall be performed in full compliance with approved Shop Drawings.
- C. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.
- D. The designated Supervisory Personnel on the project must be certified, in writing by the turf manufacturer, as competent in the installation of this material, including sewing seams and proper installation of the infield materials.
- E. Designs, markings, layouts, and materials shall conform to all currently applicable NCAA rules, NFHS rules, and/or other rules or standards that may apply to this type of synthetic turf grass installation. Designs, markings and layouts shall first be approved by the Engineer and Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

3.4 INSTALLATION

- A. Install at locations indicated, to comply with final shop drawings, per manufacturer's/installer's instructions.
- B. The Contractor shall strictly adhere to specified procedures. Any variance from these requirements shall be provided in writing, by the manufacturer's on-site representative, and submitted to the Architect and/or Owner, verifying that the changes do not in any way affect the Warranty. Infill materials shall be approved by the manufacturer and installed in accordance with the manufacturer's standard procedures.
- C. Carpet rolls shall be installed directly over the properly prepared aggregate base. Extreme care shall be taken to avoid disturbing the aggregate base, both in regard to compaction and planarity.
 - a. Repair and properly compact any disturbed areas of the aggregate base as recommended by the manufacturer.
- D. Full width rolls shall be laid out across the field.
 - a. Turf shall be of sufficient length to permit full cross-field installation from sideline to sideline.
 - b. No cross seams will be allowed in the main playing area between the sidelines.
 - c. Each roll shall be attached to the next roll utilizing standard state-of-the-art sewing procedures.
 - d. When all rolls of the playing surface have been installed, the sideline areas shall be installed at right angles to the playing surface.
- E. Artificial turf panel seams shall be sewn. Other than extension inlays, seams secured by other means including gluing are unacceptable. Installation shall be 99% sewn.
 - a. Minimum gluing will only be permitted to repair problem areas, corner completions, and to cut in any logos or inlaid lines as required by the specifications.
 - b. Seams shall be flat, tight, and permanent with no separation or fraying.
 - c. In the case of all lines and logos, turf carpet must be sheared to the backing (do not cut the backing) and adhered using hot melt adhesives.
- F. Infill Materials:
 - a. Infill materials shall be applied in numerous thin lifts. The turf shall be brushed as the mixture is applied. The infill material shall be installed to a depth determined by the manufacturer.
 - b. Infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional. The Infill installation consists of a base layer of sand followed by a final application of specifically sized rubber that completes the system. The infill shall be installed to the depth of minimum 1.75".
- G. Non-tufted or inlaid lines and markings shall be painted in accordance with turf and paint manufacturers' recommendations. Number of applications will be dependent upon installation and field conditions.
- H. Synthetic turf shall be attached to the perimeter edge detail in accordance with the manufacturer's standard procedures.
- I. Upon completion of installation, the finished field shall be inspected by the installation crew and installation supervisor.

3.5 FIELD MARKINGS

- A. Field markings shall be installed in accordance with approved shop drawings. If football is designated as the primary sport, all five yard lines will be tufted-in.
- B. Balance of sports markings will be inlaid and tufted-in.

3.6 ADJUSTMENT AND CLEANING

- A. Do not permit traffic on unprotected surfaces.
- B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.
- C. All usable remnants of new material shall become the property of the owner.
- D. The Contractor shall keep the area clean throughout the project and clear of debris.
- E. Surfaces, recesses, enclosures, and related spaces shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.
- F. Project installation throughout the construction process until date of final completion

END OF SECTION 32 1816

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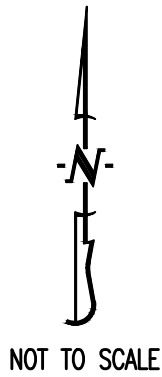
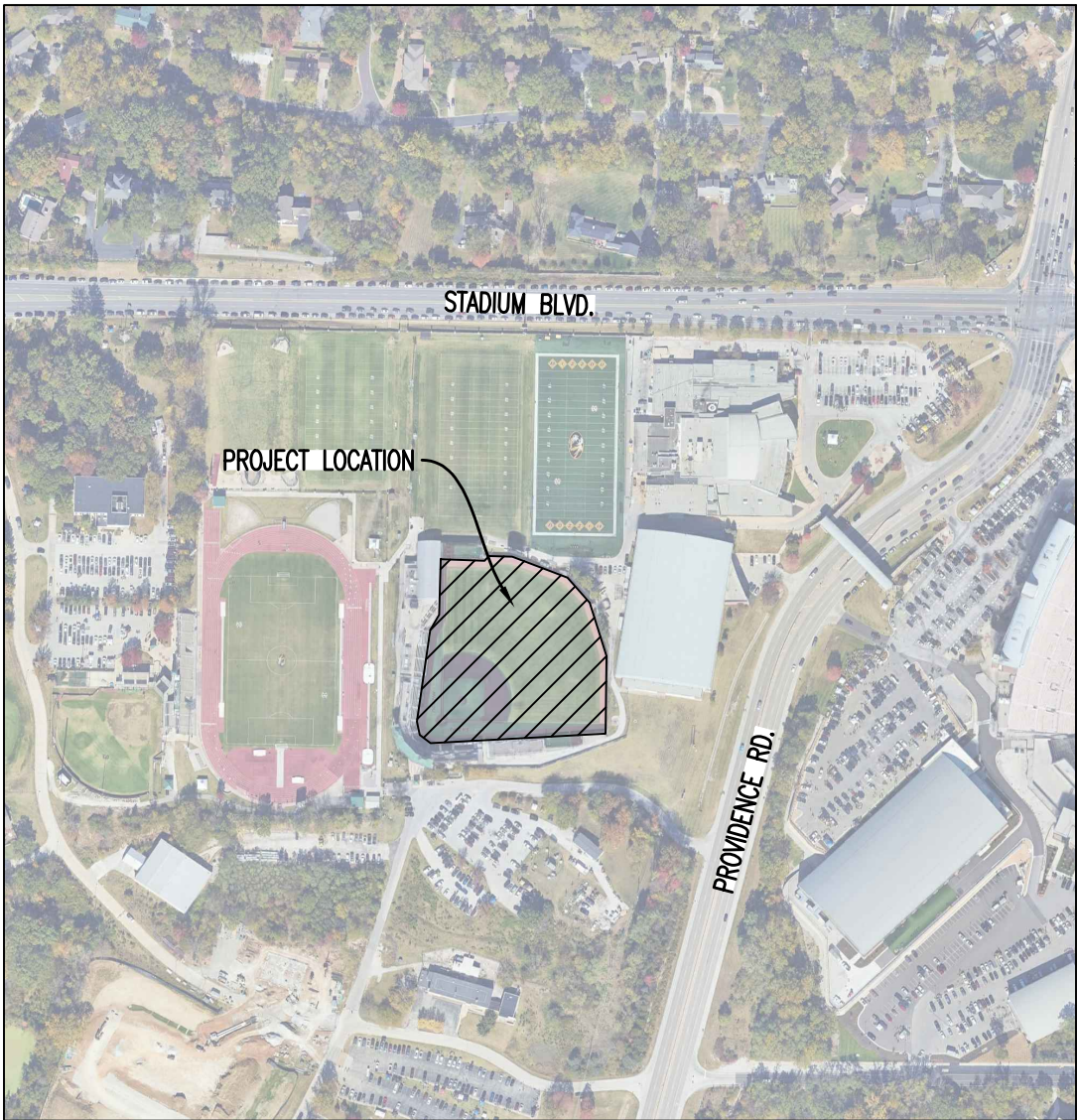


TAYLOR STADIUM - TURF REPLACEMENT

FOR THE CURATORS OF THE UNIVERSITY OF MISSOURI

PROJECT NO. CP252171

LOCATION MAP



FLOOD PLAIN STATEMENT:

NO PART OF THIS TRACT IS LOCATED WITHIN THE 100-YEAR FLOODPLAIN AS PER THE FEME F.I.R.M. PANEL #29019C0280E AND #29019C0287E, BOTH DATED APRIL 19, 2017.

UTILITY COMPANIES:

LOCATES:

MISSOURI ONE CALL INC.
10222 B NORTHEAST DRIVE
JEFFERSON CITY, MO 65109
1-800-344-7483



NATURAL GAS:

AMEREN MISSOURI
2001 MAGUIRE BLVD.
COLUMBIA, MO 65201
573-876-3030

FIBER:

UNIVERSITY OF MISSOURI, DIVISION OF I.T.
920 S COLLEGE AVE.
COLUMBIA, MO 65211
573-882-5000

WATER/ELECTRIC:

CITY OF COLUMBIA
P.O. BOX 6015
WATER & LIGHT DEPARTMENT
COLUMBIA, MO 65205
573-874-7325

SANITARY SEWER:

CITY OF COLUMBIA
P.O. BOX 6015
UTILITIES DEPARTMENT
COLUMBIA, MO 65205
573-874-7250

WATER/ELECTRIC:

ENERGY MANAGEMENT
417 S. 5TH ST.
COLUMBIA, MO 65211
573-882-3094

STORM/SANITARY SEWER &

SECONDARY ELECTRIC:

UNIVERSITY CAMPUS FACILITY OPERATIONS
180 GENERAL SERVICES BUILDING
COLUMBIA, MO 65211
573-882-8211

GENERAL NOTES:

CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT AND MAINTENANCE OF TRAFFIC CONTROL DEVICES NECESSARY TO COMPLETE THEIR PORTION OF WORK. THE DEVICES AND METHODS EMPLOYED WILL COMPLY WITH THE CURRENT VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).

EXISTING UTILITIES SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE LOCATES PRIOR TO ANY EXCAVATION.

ALL EXCAVATION TO BE IN ACCORDANCE WITH SECTIONS 319.010-319.050, REVISED STATUTES OF THE STATE OF MISSOURI. SUCH COMPLIANCE SHALL NOT, HOWEVER, EXCUSE ANY PERSON MAKING ANY EXCAVATION FROM DOING SO IN A CAREFUL AND PRUDENT MANNER, NOR SHALL IT EXCUSE SUCH PERSON FROM LIABILITY FOR ANY DAMAGE OR INJURY TO UNDERGROUND UTILITIES RESULTING FROM THE EXCAVATION.

IT IS THE INTENT OF THESE PLANS TO COMPLY WITH THE REQUIREMENTS OF THE MO&NR CLEAN WATER COMMISSION.

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL DEVICES AND REMOVING THEM ONCE THE SITE IS STABILIZED.

STORM WATER OR OTHER SOURCES OF WATER SHALL NOT BE ALLOWED TO ENTER ACTIVE STEAM SYSTEMS.

CONTRACTOR TO PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND PAVEMENT THAT IS TO REMAIN. ALL DAMAGED ITEMS OUTSIDE THE SCOPE OF WORK TO BE REPLACED OR REPAIRED TO ORIGINAL CONDITION AT THE CONTRACTORS EXPENSE.

ALL PAVEMENTS, SIDEWALKS, ABANDONED SEWERS, PIPELINES, EXCESS EARTHWORK, OR OTHER OBSTRUCTIONS TO CONSTRUCTION THAT ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFICALLY NOTED AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH STATE REGULATION 10 CSR 80-2.010 (9)(A).

ALL SLOPES ARE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

ALL DISTURBED AREAS WITHIN THE "LIMITS OF DISTURBANCE" SHALL BE FINE GRADED BY CONTRACTOR AND VEGETATION REESTABLISHED BY OWNER.

ALL STORM SEWER PIPING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL FOR PIPE BEDDING REQUIREMENTS.

TOTAL DISTURBED AREA ON SITE = 2.95 AC.

SPECIAL INSPECTIONS:

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE:

- PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING / PERIODIC OF REINFORCING)
- IN-SITU SOILS, EXCAVATIONS, FILLING & COMPACTION (PERIODIC)

THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.

PROJECT BENCHMARK:

TBM #1 - CHISELED SQUARE LOCATED AT SOUTHEAST CORNER OF 3RD BASE DUGOUT.
ELEVATION = 720.84

ENGINEER CERTIFICATION:

BY SIGNING AND AFFIXING MY SEAL TO THESE PLANS, I HEREBY CERTIFY THESE DRAWINGS AND/OR SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND/OR SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

SHEET INDEX

SHEET NUMBER	SHEET TITLE	BID SET 04/22/2025	ADDENDUM #1 04/28/2025	ADDENDUM #2 05/13/2025
CE 0.0	COVER SHEET	X	X	X
CE 1.0	EXISTING CONDITIONS	X		
CE 2.0	DEMOLITION & EROSION CONTROL PLAN	X		
CE 2.1	ACCESS PLAN	X		
CE 3.0	GRADING PLAN	X		
CE 4.0	UTILITY PLAN	X		
CE 5.0	STORM SEWER PROFILES	X		
CE 6.0	SITE PLAN	X		
CE 7.0	TURF TYPE & STRIPING PLAN	X		X
CE 8.0	SYNTHETIC TURF DETAILS	X		X
EP101	POWER PLAN		X	
E501	ELECTRICAL DETAILS & SCHEDULES		X	

LEGEND OF SYMBOLS:

=====	EXISTING CURB818.....	EXISTING MINOR CONTOUR
—————	NEW CURB	-- --820-- --	EXISTING MAJOR CONTOUR
— W —	EXISTING WATERLINE	——818——	PROPOSED MINOR CONTOUR
⊗	EXISTING WATER VALVE	——820——	PROPOSED MAJOR CONTOUR
⊞	EXISTING WATER METER	LP.	GRADING LOW POINT
⊕	EXISTING FIRE HYDRANT	HP.	GRADING HIGH POINT
— W —	NEW WATERLINE	⊞	EXISTING CONCRETE
- - - G - - -	EXISTING GAS LINE	⊞	NEW CONCRETE
⊙	EXISTING GAS METER	⊞	EXISTING ASPHALT
- - - S - - -	EXISTING SANITARY SEWER	⊞	NEW ASPHALT
⊙	EXISTING MANHOLE	SAW JOINT
— S —	EXISTING SANITARY SEWER LATERAL	- - - - -	EXPANSION JOINT
- - - UE - - -	EXISTING UNDERGROUND ELECTRIC	⊞	DEMOLITION AREA
— E —	NEW UNDERGROUND ELECTRIC	⊞	UTILITY CAP
⊞	EXISTING LIGHT POLE	⊞	EXISTING SIGN
⊞	NEW/RELOCATED LIGHT POLE	⊞	EXISTING FENCE
⊞	EXISTING UTILITY POLE	⊞	BUILDING LINE
⊞	EXISTING AIR CONDITIONER	⊞	EASEMENT
⊞	EXISTING ELECTRICAL TRANSFORMER	⊞	EXISTING TREE
⊞	EXISTING ELECTRIC METER	⊞	
⊞	EXISTING UNDERGROUND FIBER OPTIC	⊞	
⊞	EXISTING TELEPHONE PEDESTAL	⊞	
⊞	EXISTING STEAM CHASE	⊞	
⊞	EXISTING STORM SEWER	⊞	
⊞	NEW STORM SEWER	⊞	

SPECIAL SCHEDULING:

CONTRACTOR WILL NEED TO COORDINATE ACTIVITIES WITH THE OWNER'S REPRESENTATIVE FROM MAY 16, 2025 THROUGH MAY 16, 2025 DURING UNIVERSITY COMMENCEMENT ACTIVITIES.

WORK WILL BE SCHEDULED AROUND THE 2025-2026 MU FOOTBALL SEASON. HOME GAMES FOR THE 2025-2026 MU FOOTBALL SEASON ARE LISTED BELOW:

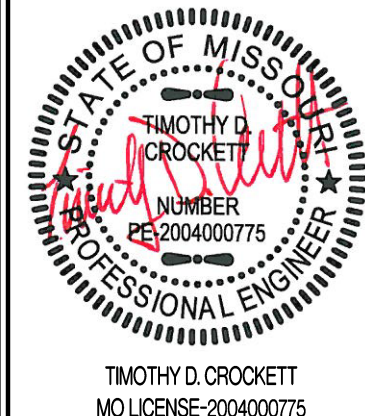
AUGUST 30, 2025
SEPTEMBER 6, 2025
SEPTEMBER 13, 2025
SEPTEMBER 20, 2025
SEPTEMBER 27, 2025 - HOMECOMING
OCTOBER 11, 2025

PARKING LOT RP-2/AH, ATHLETICS LOT H & RP8/U ARE DESIGNATED AS MU ATHLETICS DONOR PARKING DURING THE 2025-2026 MU FOOTBALL SEASON. PARKING WITHIN THESE LOTS WILL NOT BE ALLOWED ON A SCHEDULED HOME GAME. PROJECT WORK AREA SHALL BE CLEANED UP AND A WALK THROUGH PERFORMED TO ENSURE THE SITE IS SECURE AT THE CLOSE OF THE DAY BEFORE ALL HOME GAMES. THE PROJECT SITE WILL BE MADE SECURE, EQUIPMENT LOCKED DOWN AND MATERIAL MADE SAFE DURING HOME GAMES FOR THE PROJECT DURATION DURING THE 2025-2026 MU FOOTBALL SEASON.

REVISIONS:

NO.	DATE
1	04/22/2025
2	04/28/2025
3	05/13/2025

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY



PREPARED BY:
CROCKETT
ENGINEERS & ARCHITECTS
1000 W. NINTH ST., SUITE 100
COLUMBIA, MISSOURI 65203
(314) 487-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#000000001

OWNER:
THE CURATORS OF THE UNIVERSITY OF MISSOURI
228 UNIVERSITY HALL
COLUMBIA BUSINESS SERVICES
COLUMBIA, MO 65211

MU PROJECT #CP252171
TAYLOR STADIUM - TURF REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:

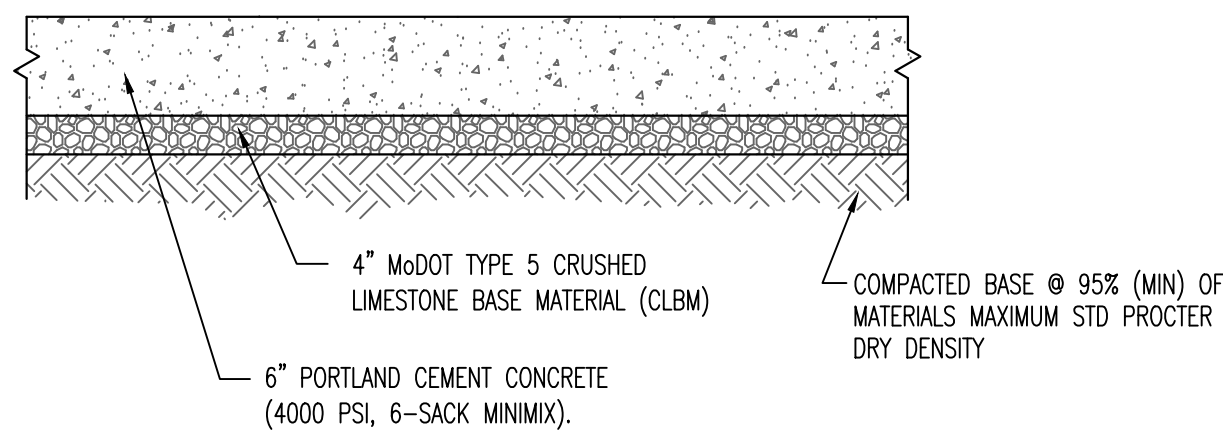
COVER SHEET

DESIGNED: TDC

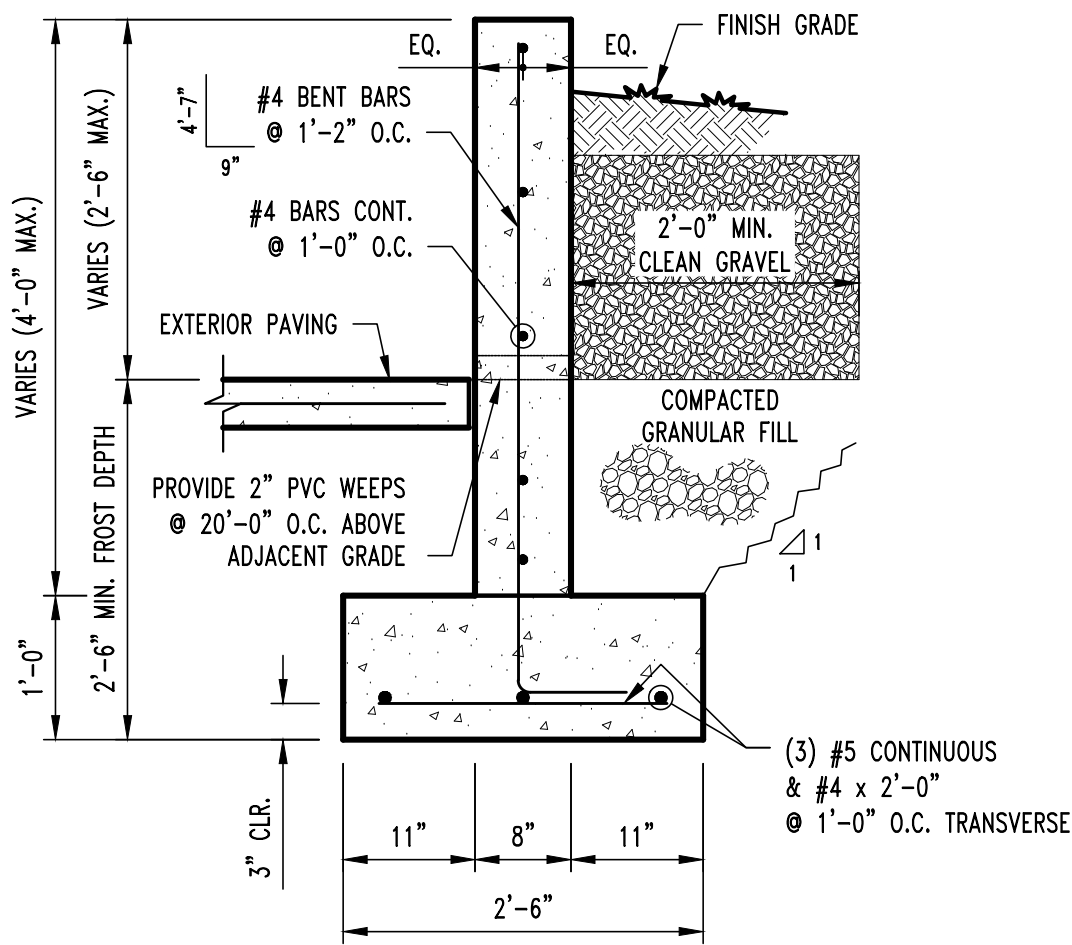
DRAWN: JEE

PROJECT NO.: 240133

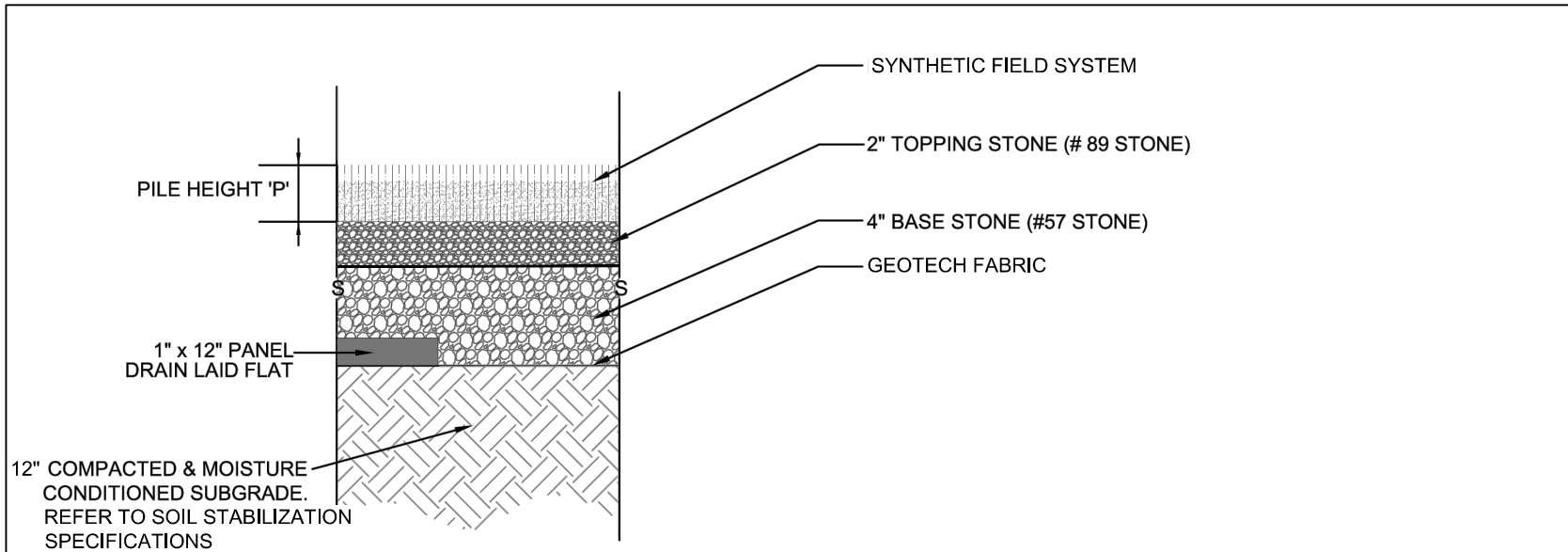
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CE 0.0



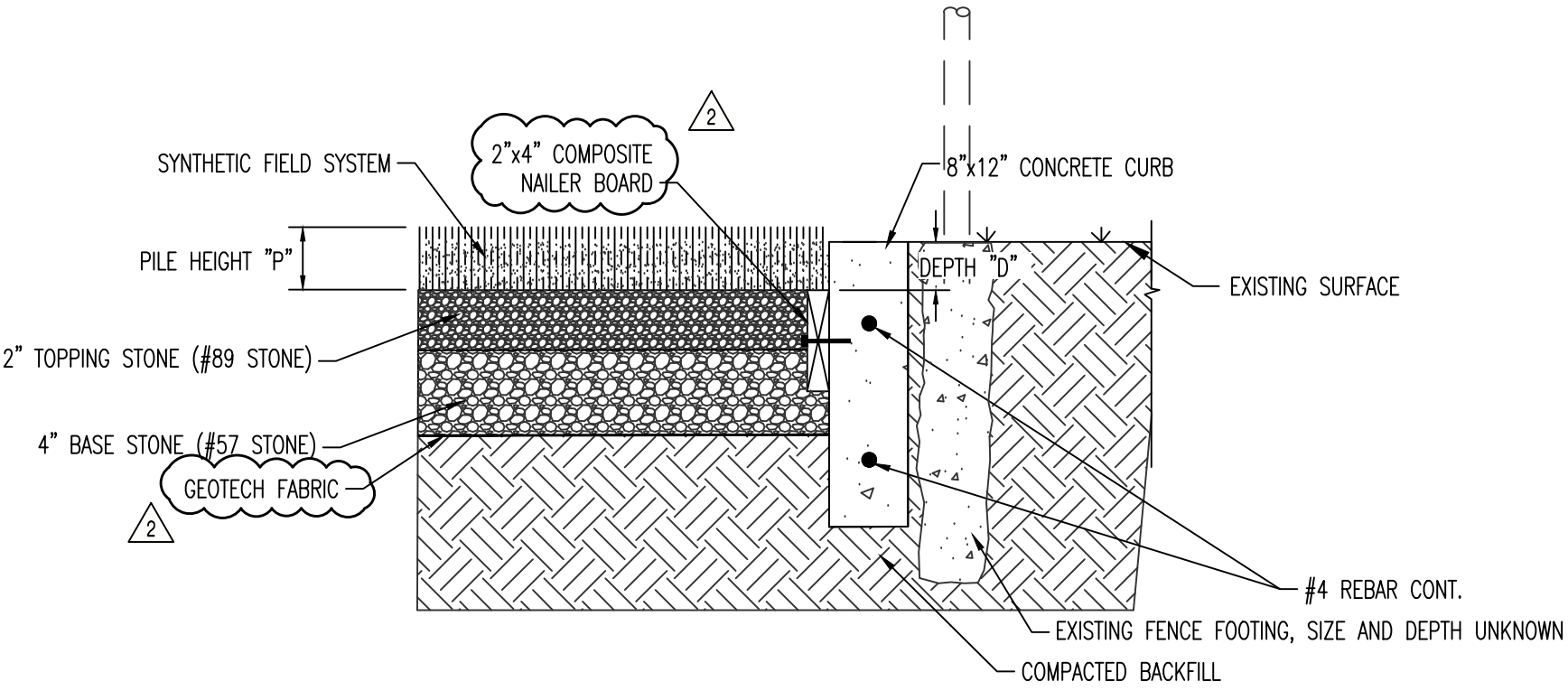
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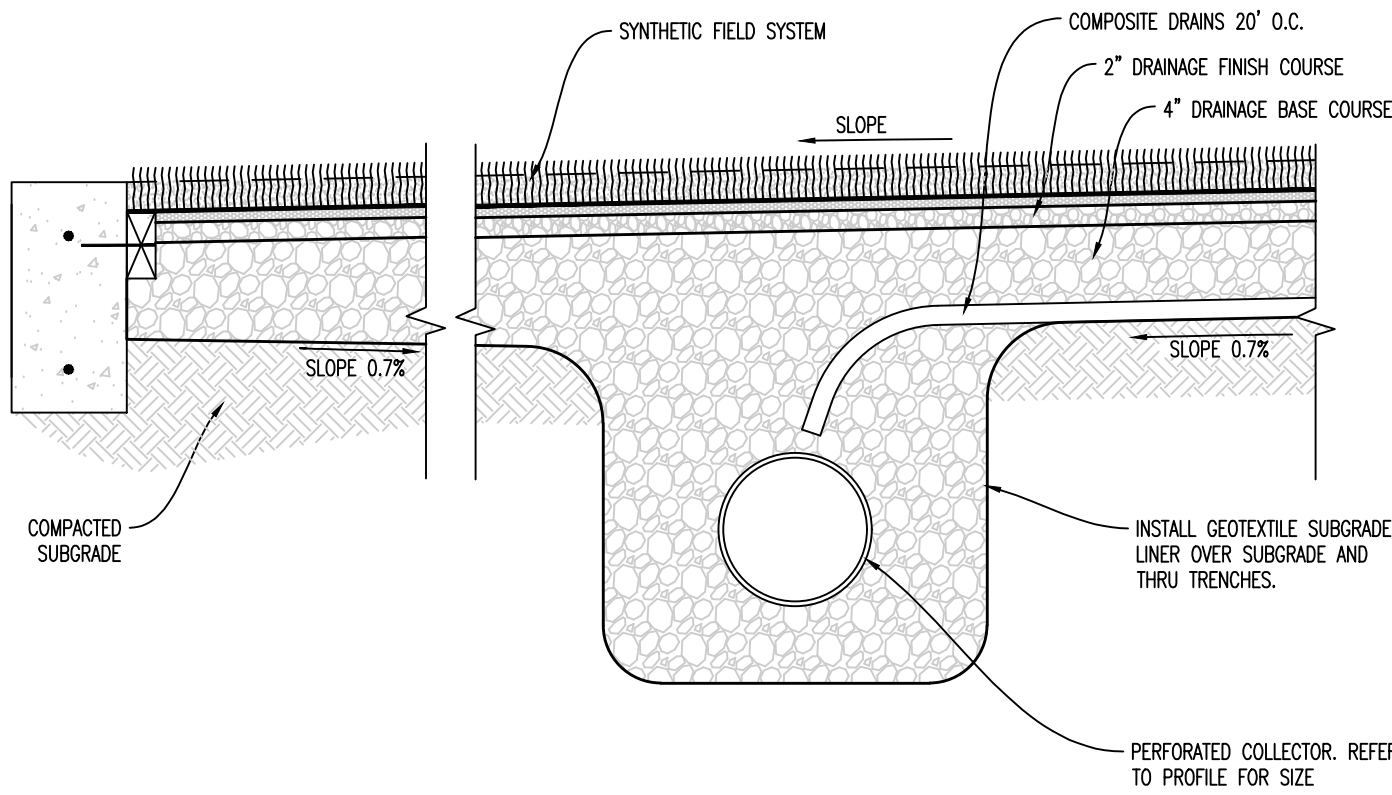
TYP. RETAINING WALL SECTION



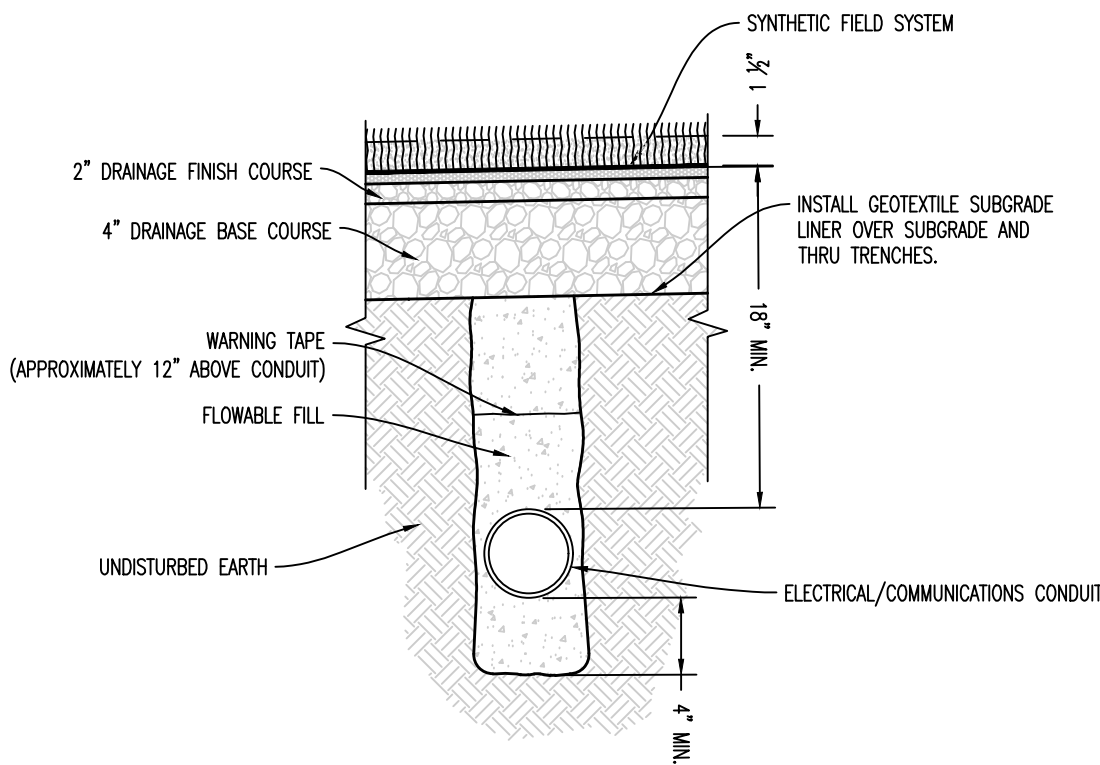
TYPICAL FIELD SECTION
SCALE: NTS



SYNTHETIC TURF EDGE - 8"x12" CURB
SCALE: NTS



PERFORATED COLLECTOR
DETAIL



CONDUIT UTILITY TRENCH
DETAIL

REVISIONS:

NO.	DATE
BID SET	04/22/2025
ADD 2	05/13/2025

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI

TIMOTHY D. CROCKETT

PROFESSIONAL ENGINEER

NUMBER

PE 2004000775

MO LICENSE 2004000775

PREPARED BY:

CROCKETT ENGINEERS & ARCHITECTS

1000 W. Illinois Blvd., Suite 100

Columbia, Missouri 65203

(314) 447-0592

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Crockett Engineering Consultants, LLC

Missouri Certificate of Authority

4000000001

OWNER:

THE CURATORS OF THE UNIVERSITY OF MISSOURI

220 UNIVERSITY HALL

COLUMBUS BUSINESS SERVICES

COLUMBIA, MO 65211

MU PROJECT #CP252171

TAYLOR STADIUM - TURF REPLACEMENT

COLUMBIA, BOONE COUNTY, MISSOURI

DRAWING INCLUDES:

SYNTHETIC TURF DETAILS

DESIGNED: TDC

DRAWN: JEE

PROJECT NO: 240133

SHEET: CE 8.0