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DATE: August 19, 2026

TO: Bidders of Record

FROM: Garry Askew, AIA
Bauer Askew Architecture, pllc

PROJECT: TTU TRACK AND FIELD
SBC# 364/011-05-2025
BAA Project Number 25007
Cookeville, Putnam County, Tennessee

SUBJECT: Addendum No 1

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated July 29, 2026, as noted below. Please acknowledge receipt of this Addendum within your Bid Response.

Where any original item called for in the Project Manual or indicated on the Drawings is supplemented by this addendum, the supplemental requirements shall supersede the previous item.

Where any original item is amended, voided, or superseded hereby, the other provisions of such items not specifically amended, voided, or superseded shall remain in effect.

This Addendum includes [2] pages and the following attachments:

- Document 00 41 13 – Bid Form
- Section 01 22 15 – Unit Prices
- Section 074113.19 – Batten Seam Roof Panels
- Section 107500 – Flagpoles
- Addendum 01 Drawings
- Pre-Bid RFIs and Responses from BAA and Consultants

CHANGES TO THE PROJECT MANUAL

1. Document Table of Contents:
 - a. Delete “074114 – Standing Seam Metal Roof Panels”
 - b. Delete “312010 Earthwork Under the Building”
2. Document 00 41 13 – Bid Form: Delete Document 00 41 13 as originally issued and replace with the attached Document 00 41 13.
3. Section 01 22 15 – Unit Prices: Delete Section 01 22 15 as originally issued and replace with the attached Section 01 22 15.
4. Section 074113.19 - Batten Seam Metal Roof Panels: Add Section 074113.19 to the Project Manual and make the appropriate change to the Table of Contents.
5. Section 074114 – Standing Seam Roof Panels: Delete Section 074114 as originally issued and make the appropriate change to the Table of Contents.
6. Section 107500 – Flagpoles: Add Section 107500 to the Project Manual and make the appropriate change to the Table of Contents.

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7. Section 270000 – General Provisions for Communications Work: Add Section 270000 to the Project Manual and make the appropriate change to the Table of Contents.
8. Section 271500 – Structured Voice and Data and Cabling Infrastructure: Add Section 271500 to the Project Manual and make the appropriate change to the Table of Contents.
9. Document 32 18 13 – Bid Form: Delete Document 32 18 13 as originally issued and replace with the attached Document 32 18 13.
10. Document 32 18 23.39 – Bid Form: Delete Document 32 18 23.39 as originally issued and replace with the attached Document 32 18 23.39.
11. Document 32 31 13 – Bid Form: Delete Document 32 31 13 as originally issued and replace with the attached Document 32 31 13.
12. Document 32 92 00 – Bid Form: Delete Document 32 92 00 as originally issued and replace with the attached Document 32 92 00.
13. Document 33 41 00 – Bid Form: Delete Document 33 41 00 as originally issued and replace with the attached Document 33 41 00.

CHANGES TO THE DRAWINGS

1. INDEX – Added columns for Addendum 01 sheets.
2. Sheet GN.01 – Revised Material Keynotes.
3. Sheet AS.01 - The graphic scale has been updated for detail 01.
4. Sheet A1.10A - The graphic scale has been updated for detail 03.
5. Sheet A1.40 – Adjusted note on detail 02.
6. Sheet A1.50 - The graphic scales have been updated for details 01 and 02.
7. Sheet A3.00 – Updated coded notes.
8. Sheet A4.10 – Revised graphics and notes on details 01-03. Responses in the Pre-Bid RFI document provides further detail.
9. Sheet A4.11 - The graphic scale has been updated for detail 03.
10. Sheet A6.01 – Door 101 was revised to 8'-4" on the door schedule. Door 102 was revised to 10' high in the door schedule. Revised door heights and frame height.
11. F1.10 – Added coded note 2.
12. Changes generated from pre-bid, please see “RFIs_Responses_08.19.2026” and “Addendum 1_Tennessee Tech_08192026.”

END OF ADDENDUM No. 1

00 41 13 – BID FORM

TO: State of Tennessee **FROM BIDDER:** _____

FOR:

Project Title: TTU TRACK AND FIELD

Project SBC No.: 364/011-05-2025

A. The Bidder hereby acknowledges, attests, certifies, warrants, and assures that:

1. Bidder has received, read and understands the Bidding Documents and this bid is made in accordance therewith.
2. Bidder has visited the site and become familiar with the local conditions under which the Work is to be performed and has correlated all observations with the requirements of the Bidding Documents.
3. Documents identified as "Information Available to Bidders" are prepared solely for the Designer's use in design of this Work and have not been relied upon in the preparation of this bid. The use and interpretation of such information for any purpose is entirely the responsibility of the using party.
4. Bidder shall not utilize the services of a contractor or subcontractor disqualified from participating in State Building Commission projects.
5. Bidder shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor or consultant who will utilize the services of an illegal immigrant in the performance of this Contract.
6. In compliance with the Iran Divestment Act the Bidder is not on the list created pursuant to Tennessee Code Annotated (TCA) § 12-12-106 and shall not utilize any subcontractor on that list.
7. Bid Security, in the amount of five percent (5%) of the total amount of bid, including Alternates, is attached hereto.
8. A Drug-Free Workplace Affidavit, in the form of Section 00 45 21, is attached hereto.
9. Failure to complete this Bid Form, provide required attachments, or comply otherwise with instructions to Bidders, may be cause for rejection of bid.
10. The person who signs this bid on behalf of the Bidder is legally empowered to bind the Bidder to a Contract.
11. The following statement is (mark the one that is applicable) ☐ True ☐ False:
The Bidder and/or any of the Bidder's employees, agents, independent contractors and/or proposed Subcontractors have been convicted of, pled guilty to, or pled nolo contendere to any contract crime involving a public contract.
12. Bidder has received the following addenda:
Addendum No. _____ dated _____. Addendum No. _____ dated _____.
Addendum No. _____ dated _____. Addendum No. _____ dated _____.

00 41 13 – BID FORM

PAGE 2 FROM BIDDER: _____

B. The Bidder agrees to:

1. Honor this bid for 45 days following the date of the scheduled opening of bids.
2. Enter into and execute a contract, if presented on the basis of this bid, and to furnish certificates(s) of insurance, bond(s), and other documents related to the contract as required, including, if the initial Contract Sum as awarded exceeds \$100,000, the Contract Bond.
3. Accomplish the Work in accordance with the Contract Documents.
4. Furnish Three Year Roof Bond in the form of Section 00 61 43 in the amount of: \$20,000.
5. Achieve Substantial Completion of the Work in accordance with the number of calendar days Contract Time set forth, allotted from and including the date stipulated in the Notice to Proceed; and, accept the conditions for Liquidated Damages in the amount set forth per calendar day.

Phase	Commencement	Contract Time	Liquidated Damages	
ALL	Notice to Proceed for All Work	335 Days	\$300.00	Per Day
Alt 1	Add Bleachers	20 Days	\$300.00	Per Day
Alt 2	Add Press Box	15 Days	\$300.00	Per Day
	<<Name or "Not Applicable">>	Days	\$	Per Day

C. BASE BID: The Bidder agrees to complete the Work of the Base Bid for this project for the lump sum of the following amount (In both words and figures. Figures prevail. Words clarify at Owner's discretion.):

_____ and _____/100ths Dollars
\$ _____

D. ALTERNATES: The Bidder agrees to include Work of the following Alternate(s), as specified in Section 01 23 00 Alternates, for the additional lump sum(s) of the following amount(s) (In both words and figures. Figures prevail. Words clarify at Owner's discretion.):

ALTERNATE No.1: Add Bleachers

_____ and _____/100ths Dollars
\$ _____

ALTERNATE No. 2: Add Press Box

_____ and _____/100ths Dollars
\$ _____

ALTERNATE No. 3: "Not Applicable"

_____ and _____/100ths Dollars
\$ _____

ALTERNATE No. 4: "Not Applicable"

_____ and _____/100ths Dollars
\$ _____

00 41 13 – BID FORM

- E. UNIT PRICES: The Bidder agrees to include work in the Base Bid and Alternates as specified for the Quantity Allowance of Unit Price Items and propose, subject to Owner acceptance, the following Unit Prices for inclusion in the Agreement as specified in Section 01 22 13 Unit Prices:

Revised, Addendum No. 1

Item No.	Unit Price per Unit	Unit	Name, Work Included
01		CY	Unsuitable Soil Cut/Replace with engineered fill
02		CY	Unsuitable Soil Cut/Replace with stone
03		CY	Sinkhole Remediation with Excavation and Engineered Fill
04		CY	Sinkhole Remediation with Excavation and Stone

F. BID SUBMITTAL:

This bid is submitted by:

Authorized Signature: _____ Date: _____

Printed Name, Title: _____

On behalf of:

Bidder Name: _____

Bidder's Address: _____

Bidder's Phone: _____

Bidder's Fax: _____

Bidder's Email: _____

END OF SECTION

01 22 15 – LIST OF UNIT PRICES

PART 1 - GENERAL

1.01 LIST OF UNIT PRICES ADD 1

Item No.	Related Sections	Base Quantity	Unit	Unit Price Per Unit	Work Included
01	312000	1000	CY	?	Unsuitable soils and/or sinkhole remediation with engineered fill or rock/gravel.
01	31200	250	CY	?	Unsuitable Soil Cut/Replace with engineered fill
02	31200	250	CY	?	Unsuitable Soil Cut/Replace with stone
03	31200	250	CY	?	Sinkhole Remediation with Excavation and Engineered Fill
04	31200	250	CY	?	Sinkhole Remediation with Excavation and Stone.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

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SECTION 074113.19
BATTEN-SEAM METAL ROOF PANELS ^{ADD 1}

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Narrow-profile, snap-on-batten-seam metal roof panels.
2. Underlayment.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written installation instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural loading limitations of supporting structure during and after roofing.
6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.3 ACTION SUBMITTALS

A. Product Data:

1. For batten-seam metal roof panels. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

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1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
 - C. Samples for Initial Selection: Manufacturer's standard color charts, showing full range of available colors for each type of exposed finish.
 1. Include similar Samples of trim and accessories involving color selection.
 - D. Samples for Verification: Actual sample of finished products for each type of exposed finish for metal panels, clips, fasteners, closures, and other metal panel accessories.
 1. Size: Manufacturers' standard size.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Product Test Reports: For batten-seam metal roof panels, for tests performed by a qualified testing agency.
 - B. Field quality-control reports.
 - C. Qualification Statements: For roof installers.
 - D. Sample warranties.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For metal panels.
- 1.6 QUALITY ASSURANCE
- A. Roof Installer Qualifications: Entity that employs experienced workers with at least 5 years' experience installing roofing of this type.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
 - B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
 - C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

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- D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written installation instructions and warranty requirements.

1.9 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY – STATE OF TENNESSEE PROJECTS

- A. Provide the State of Tennessee with a three (3) year roof bond signed by surety indemnifying the State for a three-year period. Standard form of three-year roof bond, Form Number 006143, is attached with the CONTRACT FORMS included in the Project Manual.
- B. Special Warranty: Provide 20-year weathertight labor and material, total system, State of Tennessee warranty per Sections 075035 and 075036. Manufacturer's standard warranty form will not be acceptable. Roofing systems manufacturer shall sign Tennessee State Building Commission's standard form of roof system warranty agreeing to terms as detailed in Section 076102.
- C. Provide an aluminum roof warranty sign, 10" H x 12" W x 0.040" thick minimum size, painted with gloss alkyd paint, black lettering, white background, identifying the building name and number, stating, "DO NOT MAKE REPAIRS, PENETRATIONS, OR ALTERATIONS TO THIS ROOF without express written approval from Owner or Owner's authorized representative. This roof is warranted by (insert manufacturer's name, address, and telephone number) until (insert date of the month and 20-years after date of Substantial Completion) and is bonded by (insert Contractor's name, address, and telephone number) until (insert date of the month and 3 years after date of Substantial Completion).
- D. Failures include, but are not limited to, the following:
 - 1. Structural failures, including rupturing, cracking, or puncturing.
 - 2. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 3. Failure to resist penetration of moisture.
- E. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested per ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested per ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Deflection Limits: For wind loads, no greater than 1/180 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested in accordance with ASTM E1680 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft. (75 Pa)
- C. Water Penetration under Static Pressure: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).
- D. Watertightness: No water penetration when tested in accordance with ASTM E2140 for hydrostatic-head resistance.
- E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: UL 60.

2.2 BATTEN-SEAM METAL ROOF PANELS, GENERAL

- A. Provide factory-formed metal roof panel assembly designed to be installed by mechanically attaching panels to supports using concealed clips and covering vertical side edges of adjacent panels with batten caps. Include caps and accessories required for weathertight installation.
 - 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.
 - 2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1637.

2.3 NARROW-PROFILE, SNAP-ON-BATTEN-SEAM METAL ROOF PANELS

- A. Panels: Formed with vertical ribs at panel edges; designed for independent installation by mechanically attaching panels to supports using concealed clips located between panels and installing narrow profile caps over panel joints.
 - 1. Structural Support: Over solid deck.
 - 2. Material: Metallic-coated steel.
 - 3. Panel Profile: Intermediate stiffening ribs symmetrically spaced between ribs.
 - 4. Panel Coverage: 16 inches (406 mm)
 - 5. Panel Height: 1.5 inches (38 mm).

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6. Cap: Manufacturer's standard. Same material, finish, and color as roof panels.
 - a. Height: 1.5 inches (38 mm)
 - b. Width: 1 inch
7. Clips: One-piece fixed to accommodate thermal movement.
 - a. Stainless Steel Clips: 0.0250-inch- (0.635-mm-) thick, stainless steel sheet.
 - b. Clip Spacing: 24 inches (610 mm).

2.4 UNDERLAYMENT

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils (0.76 mm) thick, specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer when recommended by underlayment manufacturer.
 1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D1970/D1970M.
 2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (minus 29 deg C); ASTM D1970/D1970M.

2.5 PANEL MATERIALS

- A. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with minimum ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with minimum ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 1. Nominal Thickness: 0.022 inch (0.56 mm).
 2. Surface: Smooth, flat finish.

2.6 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

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- C. Gutters: Form complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2400-mm-) long sections, of size and metal thickness in accordance with manufacturer's recommendations. Furnish gutter supports spaced a maximum of 36 inches (914 mm) o.c., fabricated from same metal as gutters.
- D. Downspouts: Fabricate in 10-ft.- (3-m-) long sections, complete with formed elbows and offsets, of size and metal thickness in accordance with manufacturer's recommendations. Finish downspouts to match gutters.
- E. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
- F. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
 - 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.7 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with manufacturer's recommendations.

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5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

2.8 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:
 1. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
- D. Aluminum Panels and Accessories:
 1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 1. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

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- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated on Drawings, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.
- B. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.4 INSTALLATION OF BATTEN-SEAM METAL ROOF PANELS

- A. Install metal panels in accordance with manufacturer's written instructions and approved Shop Drawings in orientation, sizes, and locations indicated on Drawings. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 3. Install screw fasteners in predrilled holes.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Install flashing and trim as metal panel work proceeds.
 - 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 - 7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 - 8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
 - 1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
 - 2. Aluminum Panels: Use aluminum or stainless steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.

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- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners in accordance with manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- E. Batten-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each batten-seam joint at location, spacing, and with fasteners recommended by manufacturer.
 - 1. Install clips to supports with self-drilling fasteners.
 - 2. Apply caps to metal roof panel seams, fully engaged to provide weathertight joints.
 - 3. Watertight Installation:
 - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend by manufacturer as needed to make panels watertight.
 - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 - c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 ft. (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- H. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

BATTEN SEAM ROOFING PANELS – 074113.19 - 10

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- I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
 - 1. Connect downspouts to underground drainage system indicated.

3.5 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113.19

SECTION 107500
FLAGPOLES ^{ADD 1}

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes ground-mounted flagpoles made from aluminum.

1.2 PERFORMANCE REQUIREMENTS

- A. Pole With Flag Flying: Resist without permanent deformation, 90 miles per hour wind velocity, non-resonant, safety design factor of 2.5.
- B. Pole Without Flag: Resist without permanent deformation, 90 miles per hour wind velocity non-resonant, safety design factor of 2.5.
- C. Seismic Loads: As indicated in SEI/ASCE 7.

1.3 ACTION SUBMITTALS

- A. Submittals: Follow Section 013300.
- B. Provide product data on pole, accessories, configurations, finishes, cleats, truck, finial, halyards, and flag attachment devices.
- C. Samples: Submit two flag samples 18 by 18 inches minimum in size illustrating material, color and finish.

1.4 INFORMATIONAL SUBMITTALS

- A. Delegated-Design Submittal: Indicate on shop drawings, detailed dimensions, base details, anchor requirements and imposed loads. Submittals shall bear the seal of professional engineer licensed in state in which Project is located.

1.5 QUALITY ASSURANCE

- A. Design flagpole foundation under direct supervision of a professional structural engineer experienced in design of this work, registered in the state in which Project is located.
- B. Provide products of this Section from a single manufacturer, including base, anchorage devices and accessories.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products per Section 016000.
- B. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.
- C. Protect flagpole and accessories on site from damage or moisture.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Acme/Lingo Flagpoles, Southhampton, NJ.
- B. American Flagpole, Inc., Abingdon, VA.
- C. Concord Industries, Inc., Addison, TX.
- D. Eder Flag Mfg. Corp., Milwaukee, WI.
- E. Flagraphics, Inc., Somerville, MA.
- G. Pole-Tech Co., Inc., East Setauket, NY.
- H. Substitutions: None permitted.

2.2 FLAGPOLES

- A. Aluminum Flagpoles: Provide cone-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B 241/B 241M, Alloy 6063, with a minimum wall thickness of 3/16 inch (4.8 mm).
- B. Flagpole Construction, General: Construct flagpoles in one piece if possible. If more than one piece is necessary. Fabricate shop and field joints without using fasteners, screw collars, or lead calking. Provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.
- C. Nominal Height: 35 feet minimum measured from ground.
- D. Foundation Tube Sleeve: AASHTO M-36, corrugated 16 gage steel, galvanized; depth not less than 10 percent of exposed length or as shown whichever is greater.
- E. Sleeve for Aluminum Flagpole: Fiberglass or PVC pipe foundation sleeve, made to fit flagpole, for casting into concrete foundation.
- F. Foundation Sleeve Plate: Square steel plate, 3/16-inch minimum thickness, welded to bottom of foundation sleeve.

- G. Centering Wedges: Internal steel wedges, 1/8-inch minimum thickness, welded to support plate for centering of flagpole.
- H. Ground Spike: Steel spike, 3/4-inch diameter, welded to bottom of foundation sleeve plate minimum length below concrete foundation to be equal to footing thickness below foundation sleeve plate or as shown whichever is greater.
- I. Foundation Support Plate: Steel plate, 6 inches square by 3/16 -inch-thick minimum, welded to ground spike at base of concrete foundation.
- J. Lightning Ground Cable: Copper No. 6 AWG stranded, soft drawn.

2.3 FITTINGS

- A. Finial Ball: Spun aluminum; 14 gage; diameter same as pole butt diameter, 5 inches minimum.
- B. Internal Halyard, Winch System: Manually operated winch with control stop device and removable handle, stainless-steel cable halyard, and concealed revolving truck assembly with plastic-coated counterweight and sling. Provide flush access door secured with cylinder lock. Finish truck assembly to match flagpole.
- C. Halyard Flag Snaps: Provide two chromium-plated bronze swivel snap hooks per halyard with neoprene or vinyl covers.
- D. Flag: American design, and State of Tennessee 6'-0" by 10'-0" size; felt, tackle twill or nylon fabric.
- E. Primer: Soya-alkyd resin; 1.5 mils minimum dry film thickness per coat; 3.27 pounds/gal VOC's maximum; 49 percent solids by volume minimum; performance alternate to FS TT P 641G.

2.4 MISCELLANEOUS MATERIALS

- A. Non-shrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
- B. Drainage Material: Crushed stone, or crushed or uncrushed gravel; coarse aggregate.
- C. Sand: ASTM C 33, fine aggregate.
- D. Elastomeric Joint Sealant: Single-component nonsag urethane joint sealant complying with requirements in Section 079200 "Joint Sealants" for Use NT (nontraffic) and for Use M, G, A, and, as applicable to joint substrates indicated, for Use O.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- F. Concrete: Minimum compressive strength of 4,000 psi; air entrained; 3-4" slump

2.5 FABRICATION

- A. Outside Butt Diameter, Outside Tip Diameter and Nominal Thickness: As needed to meet performance criteria, no less than 6 inches diameter; 0.188 inch wall thickness minimum.
- B. Fabricate all joints to be inconspicuous. Grind all welds smooth, and finish to match pole shaft.
- C. Provide internal splicing, self-aligning sleeves of compatible metal with snug fitting and tightly butted field joints. No field welding will be permitted.

2.6 FINISHES

- A. Aluminum: Class I natural anodized finish; AA-M21-C22-A41 smooth specular mechanical finish; chemical etch, medium matte; 0.7 mil minimum thick anodic coating.
- B. Metal Surfaces in Contact with Concrete: Asphaltic paint.
- C. Concealed Steel Surfaces: Prime painted.
- D. Exposed to View Steel Surfaces: Field painted, color as selected.
- E. Finial: Clear anodized, AA-A41.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, including foundation; accurate placement, pattern, orientation of anchor bolts, and other conditions affecting performance of the Work.
- B. Beginning of installation means acceptance of existing.

3.2 PREPARATION

- A. Prepare uncoated metal flagpoles that are set in foundation tubes by painting below-grade portions with a heavy coat of bituminous paint.
- B. Foundation Excavation: Excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete. Place and compact drainage material at excavation bottom.
- C. Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade. Secure and brace forms to prevent displacement during concreting.
- D. Place concrete. Compact concrete in place by using vibrators. Moist-cure exposed concrete for not less than seven days before installing flagpole and raising flags.

- E. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks, and uniform in texture and appearance. Provide positive slope for water runoff to perimeter of concrete base.

3.3 INSTALLATION

- A. Install flagpole, base assembly and fittings where shown per manufacturer's instructions and delegated shop drawings.
- B. Ground Set: Place foundation tube, center, and brace to prevent displacement during concreting. Place concrete. Plumb and level foundation tube and allow concrete to cure. Install flagpole, plumb, in foundation tube.
 - 1. Foundation Tube: Place tube seated on bottom plate between steel centering wedges and install hardwood wedges to secure flagpole in place. Place and compact sand in foundation tube and remove hardwood wedges. Seal top of foundation tube with a 2-inch (50-mm) layer of elastomeric joint sealant and cover with flashing collar.
- C. Electrically ground flagpole installation.
- D. Install foundation plate and centering wedges for flagpole base set on concrete base and fasten. Fill foundation tube sleeve with sand and compact.

3.4 TOLERANCES

- A. Maximum Variation from Plumb: One inch.

3.5 ADJUSTING AND CLEANING

- A. Clean surfaces.
- B. Check and adjust installed fittings for smooth operation of halyards and flag.

END OF SECTION

GENERAL PROVISIONS FOR COMMUNICATIONS WORK - 270000 - 1

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SECTION 270000 GENERAL PROVISIONS FOR COMMUNICATIONS WORK

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Applicable requirements of General Requirements/Provisions shall be considered a part of this section and shall have the same force as if printed herein full. In addition, all information related to communications infrastructure that is documented in the architectural, structural, mechanical, and electrical drawings/documents shall be included as part of the Communications documents.

1.2 QUALITY ASSURANCE

- A. Specifications, Standards and Codes: All work shall be in accordance with the following:
 - 1. The National Electrical Code (NFPA 70) as adopted by the local AHJ
 - 2. American National Standards Institute (ANSI)
 - 3. National Electrical Manufacturers Association (NEMA)
 - 4. Telecommunications Industries Association (TIA)
 - 5. Electronic Industries Association (EIA)
 - 6. Institute of Electrical & Electronics Engineers (IEEE)
 - 7. Underwriters Laboratories (UL)
 - 8. American Standards Association (ASA)
 - 9. Federal Communications Commission (FCC)
 - 10. Occupational Safety and Health Administration (OSHA)
 - 11. American Society of Testing Material (ASTM)
 - 12. Americans with Disabilities Act (ADA)
 - 13. Local city and county ordinances governing electrical work
 - 14. In the event of conflicts, the more stringent provisions shall apply.

1.3 SCOPE

- A. The work to be done under this section of the Specifications shall include the furnishing of labor, material, equipment and tools required for the complete installation of the work indicated on the Drawings or as specified herein.
- B. All materials, obviously a part of the Communications Infrastructure and necessary to its proper operation, but not specifically mentioned or shown on the Drawings, shall be furnished and installed without additional charge.
- C. The Drawings and Specifications are complementary to each other and what is called for by one shall be as binding as if called for by both. If a discrepancy exists between the Drawing and Specifications, the higher cost shall be included, and the engineer shall be notified of the discrepancy.

1.4 WORK INCLUDED

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- A. The Communications Infrastructure installed and work performed under this Division of the Specifications shall include but not necessarily be limited to the following:
- B. Voice/Data Cabling Infrastructure
- C. Low Voltage & Communications conduits, raceways, cable tray, racks, cabinets and equipment mounting boards
- D. Grounding and Bonding
- E. Underground raceway excavation, backfill, and compaction
- F. Concrete work for duct banks, maintenance holes, handholes, vaults and restoration (where applicable)

1.5 DEFINITIONS

- A. Terms: The following definitions of terms supplement those of the General Requirements and are applicable to Division 27 - Communications:
- B. Provide: As used herein shall mean “furnish, install and test (if applicable) complete.”
- C. Infrastructure: As used herein shall mean cable, conduit, raceway, cable tray or j-hooks with all required boxes, fittings, connectors, and accessories; completely installed.
- D. Work: As used herein shall be understood to mean the materials completely installed, including the labor involved.

1.6 DRAWINGS

- A. Drawings are generally diagrammatic and show the arrangement and location of pathways, outlets, support structures and equipment. The Contractor shall carefully investigate the structural and finish conditions affecting his work and arrange his work accordingly. Should conditions on the job make it necessary to make adjustments to pathways or materials, the Contractor shall so advise the Engineer and secure approval before proceeding with such work.
- B. Where exact locations are required by equipment for stubbing-up and terminating conduit concealed in floor slabs, the Contractor shall request shop drawings, equipment location drawings, foundation drawings, and any other data required by him to locate the concealed conduit before the floor slab is poured.
- C. Materials, equipment or labor not indicated but which can be reasonably inferred to be necessary for a complete installation shall be provided. Drawings and Specifications do not undertake to indicate every item of material, equipment, or labor required to produce a complete and properly operating installation.
- D. The right is reserved to make reasonable changes in locations of equipment indicated on Drawings prior to rough-in without increase in contract cost.

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- E. The Contractor shall not modify the size or number of conduit runs indicated on the Drawings without the written approval of the Engineer.
- F. Any work installed contrary to Contract Drawings shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.
- G. The location of equipment, support structures, outlets, and similar devices shown on the Drawings are approximate only. Do not scale Drawings. Obtain layout dimensions for equipment from Architectural plans unless indicated on Communications plans.
- H. Schematic diagrams shown on the Drawings indicate the required functions only. The technology of a particular manufacturer may be used to accomplish the functions indicated without exact adherence to the schematic Drawings shown. Additional labor and materials required for such deviations shall be furnished at the Contractor's expense.
- I. Verify the ceiling type, ceiling suspension systems, and clearance above hung ceilings prior to ordering cabling and associated hardware. Notify the Engineer of any discrepancies or potential conflicts which may inhibit the completion of the specified work.
- J. Review all architectural drawings for modular furniture. The contractor is not relieved of his/her responsibilities due to improper coordination. If the contractor feels they do not have the proper construction drawings in order to properly coordinate their work, they must request them of the owner, architect, engineer, or General Contractor.
- K. Portions of these Drawings and Specifications are abbreviated and may include incomplete sentences. Omissions of words or phrases such as "the Contractor shall," "shall be," "as indicated on the Drawings," "In accordance with," "a," "the" and "all are intended" shall be supplied by inference.

1.7 SUBMITTALS

- A. Submit for approval, details of all materials, equipment and systems to be furnished. Work shall not proceed without the Owner and/or the Designer's approval of the submitted items. The contractor shall supply one (1) in electronic PDF format consisting of COMPLETE BROCHURES AND SHOP DRAWINGS OF ALL MATERIALS, HARDWARE, COMPONENTS AND EQUIPMENT:
 - 1. Submittals for individual systems and equipment assemblies that consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered, reviewed or stored, and such submittals will not be returned except at the request and expense of the Contractor.
 - 2. Materials, hardware or components to be used complete the work identified must be clearly identified with a bold arrow or circle on each individual cutsheet. The submittal will be rejected without the proper identification.
 - 3. Contractor shall generate shop drawings. Modify reviewed and accepted shop drawings to include revisions based upon completion of work. Submit shop drawings with record drawings on hard copy.
 - 4. Shop drawings shall include equipment racks, patch panels, termination blocks, connection details, rack mounting details and any other details not included in the construction drawings.
- B. Any materials and equipment listed that are not in accordance with Specification requirements may be rejected.

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- C. The approval of material, equipment, systems and shop drawings is a general approval subject to the Drawings, Specifications and verification of all measurements at the job. Approval does not relieve the Contractor from the responsibility of shop drawing errors. The Contractor shall carefully check and correct all shop drawings prior to submission for approval.

1.8 QUALITY ASSURANCE

- A. Equipment and materials required for installation under these Specifications shall be the current model and new (less than one [1] year from the date of manufacture), unused and without blemish or defect.
- B. Equipment shall bear labels attesting to Underwriters Laboratories, where subject to label service. Manufacturers of equipment and materials pertinent to these items shall have been engaged in the manufacture of said equipment a minimum of three (3) years and, if so directed by the Owner, be able to furnish proof of their ability by submitting affidavits and descriptive data about their product including size and magnitude comparable to requirements specified herein.

1.9 CONTRACTOR QUALIFICATIONS

- A. The Contractor shall have total responsibility for the coordination and installation of the work shown and described in the Drawings and Specifications. The Contractor shall be a company specializing in the design, fabrication and installation of integrated communications systems.
- B. Communications Systems specified shall be installed under the direction of a qualified Contractor. Qualification requirements shall include submittal by the Contractor to the Architect of the following:
 - 1. List of previous projects of this scope, size and nature; including names and sizes of projects, description of work, time of completion and names of contact persons for reference.
 - 2. Shall certify that they are manufacturer-authorized for work to be performed.
- C. Contractor must employ at least one (1) full-time Registered Communications Distribution Designer (RCDD). The RCDD shall be a W2 employee and not a subcontractor.
- D. Contractor must employ at least one (1) full-time certified Crestron programmer. The Crestron programmer shall be a W2 employee and not a subcontractor.

1.10 COORDINATION WITH OTHER TRADES

- A. The Contractor shall coordinate communications work with that of other sections as required to ensure that the entire communications work will be carried out in an orderly, complete and coordinated fashion.

1.11 SITE INVESTIGATION

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- A. Prior to submitting bids of the project, visit the site of the work to become aware of existing conditions that may affect the cost of the project. Where work under this project requires extension, relocation, reconnections or modifications to existing equipment or systems, the existing equipment or systems, shall be restored to their original condition before the completion of this project.

1.12 PERMITS

- A. Obtain all permits and inspections for the installation of this work and pay all charges incident thereto. Deliver to the Owner all certificates of said inspection issued by authorities having jurisdiction.

1.13 RENOVATIONS AND ADDITIONS

- A. All work that would adversely affect the normal operation of the other portions of the Owner's property shall be done at a time other than normal working hours. Normal working hours shall be considered 8 a.m. to 5 p.m. Monday through Friday.
- B. Prior to submitting bids on the project, visit the site of the work to become aware of existing conditions that may affect the cost of the project.
- C. Where work under this project requires extension, relocation, reconnections or modifications to existing equipment or systems, the existing equipment or systems shall be restored to their original and operating condition. Remove all equipment indicated to be demolished, including outlets, devices, raceways and support structures.
- D. Care shall be exercised in the removal and storage of equipment indicated to be relocated or removed and reused. Prior to placing back into service, equipment shall be cleaned, and marred or chipped paint surfaces touched-up.
- E. Provide all coring, cutting and patching to existing walls, floors, etc., required for the removal of existing work or the installation of new work.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

- A. Where equipment is identified by manufacturer and catalog number, it shall be as the base of requirements for quality and performance. Where manufacturers for equipment are identified by name, the Contractor may submit for approval, similar equipment of other manufacturers as substitution. The Engineer's decision as to whether the submitted equipment is acceptable shall be final and binding.
- B. All changes necessary to accommodate the substituted equipment shall be made at the Contractor's expense, and shall be as approved by the Engineer. Detailed drawings indicating the required changes shall be submitted for approval at the time the substitution is requested.

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- C. If substitutions are made in lieu of device specified; form, dimension, design and profile shall be submitted to the Engineer for approval.
- D. Submit request for approval of substitute materials in writing to the Architect at least ten days prior to bid opening.

2.2 MATERIALS

- A. All materials used in this work shall be new and shall bear the inspection label of Underwriters' Laboratories Inc. or certification by other recognized laboratory.
- B. The published standards and requirements of the Telecommunications Industries Association (TIA), National Electrical Manufacturers Association (NEMA), the American National Standard Institute (ANSI), the Institute of Electrical and Electronic Engineers (IEEE), and the American Society of Testing Materials (ASTM), are made a part of these Specifications and shall apply wherever applicable.
- C. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts are available.
- D. When more than one unit of the same class of equipment or material is required, such units shall be the products of a single manufacturer or partner manufacturers that offer a certified solution.
- E. Components of an assembled unit need not be products of the same manufacturer, but must offer a certified end-to-end solution.
- F. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.
- G. Components shall be compatible with each other and with the total assembly for the intended service.

PART 3 EXECUTION

3.1 EXAMINATION OF CONDITIONS

- A. Prior to the start of work, the Contractor shall carefully inspect the installed work of other trades and verify that such work is complete to the point where installation may properly commence. Start of work indicates acceptance of conditions.
- B. Install equipment in accordance with applicable codes and regulations, the original design and the referenced standards.
- C. In the event of a discrepancy, immediately notify the Project Manager.
- D. Do not proceed with installation until unsatisfactory conditions and discrepancies have been fully resolved.

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3.2 PROTECTION OF SYSTEMS AND EQUIPMENT

- A. Protect materials and equipment from damage during storage at the site and throughout the construction period. Equipment and materials shall be protected during shipment and storage against physical damage, dirt, theft, moisture, extreme temperature and rain.
- B. Damage from rain, dirt, sun and ground water shall be prevented by storing the equipment on elevated supports and covering the sides with securely fastened protective rigid or flexible waterproof coverings.
- C. During installation, equipment shall be protected against entry of foreign matter on the inside and be vacuum cleaned both inside and outside before testing, operating or painting.
- D. As determined by the Project Manager, damaged equipment shall be fully repaired or shall be removed and replaced with new equipment to fully comply with requirements of the Contract Documents. Decision of the Project Manager shall be final.
- E. Damaged paint on equipment and materials shall be repainted with painting equipment and finished with the same quality of paint and workmanship as used by the manufacturer.

3.3 ACCESS TO EQUIPMENT

- A. Equipment shall be installed in location and manner that will allow convenient access for maintenance and inspection.
- B. Working spaces shall be not less than specified in the National Electrical Code (NEC) for voltages specified.
- C. Where the Project Manager determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled, one time only, as directed by the Project Manager, at no additional cost to the Owner. "Conveniently accessible" is defined as being capable of being reached without the use of ladders or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping and duct work.

3.4 CLEANING

- A. During construction, and prior to Owner acceptance of the building, remove from the premises and dispose of packing material and debris caused by communications work.
- B. Remove dust and debris from interiors and exteriors of electrical equipment. Clean accessible current carrying elements prior to being energized.

3.5 COMPLETION

- A. General: Upon completion of the work, remove excess debris, materials, equipment, apparatus, tools and similar items. Leave the premises clean, neat and orderly.

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- B. Results Expected: Systems shall be complete and operational and controls shall be set and calibrated. Testing, start-up and cleaning work shall be complete.
- C. Maintenance Materials: Special tools for proper operation and maintenance of the equipment provided under this Specification shall be delivered to the Owner.

3.6 TESTING AND VERIFICATION

- A. See specific Division 27 sections for testing parameters of sub-systems.
- B. The Contractor shall verify that requirements of this Specification are met. Verification shall be through a combination of analyses, inspections, demonstrations and tests, as described below.
- C. Verification by inspection includes examination of items and comparison of pertinent characteristics against the qualitative or quantitative standard set forth in the Specifications. Inspection may require moving or partially disassembling the item to accomplish the verification, included as part of the work at no additional cost to the Owner.
- D. The Contractor shall verify by formal demonstrations or tests that the requirements of this Specification have been met. The Contractor shall demonstrate that the communications systems, components and subsystems meet Specification requirements in the “as-installed” operating environment during the “System Operation Test.” Even though no formal environmental testing is required, the Contractor shall measure and record temperature, humidity and other environmental parameters and the environmental conditions, which were encountered during the “System Operation Test.”
- E. The Contractor shall carefully plan and coordinate the final acceptance tests so that tests can be satisfactorily completed. The Contractor shall provide necessary instruments, labor and materials required for tests, including the equipment manufacturer's technical representative and qualified technicians in sufficient numbers to perform the tests within a reasonable time period.
- F. The Contractor shall satisfy all items detailed in the final acceptance check-off list (punch list). The list shall be a complete representation of specified installation requirements. At the time of final acceptance punch list items shall be corrected until the system is found to be acceptable to the Owner and the Project Manager.
- G. After the Contractor systems have been installed and tested, the completed test plan shall be signed by the Communications Contractor Project Manager and submitted for approval.

END OF SECTION 27 0000

STRUCTURED VOICE AND DATA CABLING INFRASTRUCTURE - 271500 - 1

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SECTION 271500 STRUCTURED VOICE AND DATA CABLING INFRASTRUCTURE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Equipment, materials, labor, and services to provide telephone and data distribution system including, but not limited to:
 - 1. Conduit, Sleeves, Pathways and cable tray.
 - 2. Telephone and data cabling and terminations.
 - 3. Optical fiber and terminations.
 - 4. Telecommunications outlets.
 - 5. Terminal blocks/cross-connect / patch panel systems.
 - 6. Equipment racks and cabinets.
 - 7. Wire Management
 - 8. System testing.
 - 9. Documentation and submissions.
- B. Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete turnkey installation. Ensure that they are in compliance with requirements stated or reasonably inferred by the contract documents.
- C. Work not included:
 - 1. The following work will be done by others:
 - a. Service Provider Cabling, terminations, and equipment
 - b. Providing data switches, hubs, routers, servers, computers, and other active devices.
 - c. Telephone switch (PBX) and handsets.

1.2 REFERENCES

- A. Design, test, and install telecommunications cabling infrastructure per manufacturer's requirements and in accordance with NFPA70 (National Electrical Code®), state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards:
 - 1. ANSI/NECA/BICSI568 - Standard for Installing Commercial Building Telecommunications Cabling.
 - 2. ANSI/TIA/EIA Standards:
 - a. ANSI/TIA/EIA568B.1 Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements.
 - b. ANSI/TIA/EIA568B.2 Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components.
 - c. ANSI/TIA/EIA568B.3 Optical Fiber Cabling Components Standard.
 - 3. ANSI/TIA/EIA569A Commercial Building Standard for Telecommunications Pathways and Spaces.
 - 4. ANSI/TIA/EIA606(A) The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
 - 5. ANSI/TIA/EIA607(A) Commercial Building Grounding and Bonding Requirements for Telecommunications.

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6. Note: These standards can be obtained through BICSI at www.bicsi.com as well as www.tiaonline.org. This manual is based on the version of the standards indicated. In practice, the most recent version should be used.

B. Install cabling in accordance with the most recent edition of BICSI® publications:

1. BICSI Telecommunications Distribution Methods Manual.
2. BICSI Outside Plant Design Reference Manual
3. BICSI Information Technology Systems Installation Methods Manual.

C. Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of the owner's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

D. RELATED SECTIONS

1. Section 260529 – Supporting Devices and Hangers
2. Section 260534 – Raceways and Conduit Systems

1.3 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

A. The General Contractor will make application and pay for building permit.

B. The Structured Cabling Contractor shall supply a Low Voltage Permit when applicable by the authority having jurisdiction.

C. As prerequisite to final acceptance, supply to the owner certificates of inspection from an inspection agency acceptable to the owner and approved by local municipality and utility company serving the project.

1.4 SYSTEM DESCRIPTION

A. A telecommunications cabling system generally consists of one telecommunications outlet in each workstation, wall telephones in common and mechanical areas, Equipment room (ER), Telecommunication room(s) TR(s) located on each floor, and the Demarcation point (DEMARC) located in the TR.

B. A typical workstation will consist of one voice jack and one or more data jacks. The number of cables per outlet are indicated on the telecommunication drawings.

C. All horizontal UTP cabling to be installed for a typical telecommunication outlet shall meet or exceed ANSI/TIA Category 6A specifications and be black in color. In certain situations, different cables will be needed, refer to the Telecommunication T- sheets to determine number and types of cables.

D. All horizontal UTP cabling to be installed for a wireless access point outlet shall meet or exceed ANSI/TIA Category 6A specifications and be black color.

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- E. In the telecommunication rooms (TRs) all horizontal cable runs shall be loosely wrapped using Velcro™ type straps. Plastic cable ties are not permitted in the TRs.
- F. All patch panels and 110 termination blocks shall be installed, terminated and tested in accordance with the manufacturer's recommendations and as set forth in the standards. Patch panels are to be installed within equipment racks as noted in the rack elevations found in T-sheet Elevations drawings. The design of the TR will dictate whether the use of patch panels, 110 termination blocks or both is required.
- G. Vertical/horizontal copper backbone cabling consists of multiple pair unshielded twisted-pair installed from the main cross-connect (MC) located in the TR to the horizontal cross-connect (HC) located in each TR. This copper backbone will serve as the telephone riser backbone. When using patch panels, the 24th port in each panel will support a 2-pair termination scheme so that all pairs are terminated.
- H. Vertical/horizontal backbone data cabling shall consist of a OM3 Multi-mode, OS1 single-mode fiber optic cable installed from the MC to the HC and will serve as the data communications fiber backbone. All fiber optic cable shall be installed, terminated and tested in accordance with the manufacturer's recommendations.
- I. All voice and data cabling shall be Non-Plenum (PVC) as defined by the environment in which it is to be installed. Contractor maintains the responsibility to comply with local and jurisdictional code requirements.
- J. Building feed cabling shall be Hybrid Fiber 24-strand OS1 single-mode and 12-strand OM3 multi-mode installed from the MDF to the campus data center. All fiber optic cabling must be terminated using color coded fusion spliced pigtails with LC-UPC style connectors unless otherwise specified.

1.5 PRE-CONSTRUCTION SUBMITTALS

- A. Submit to the engineer/designer shop drawings, and product data (including cut sheets and catalog information), as required by these contract documents. Submit shop drawings and product data with such promptness and in such sequence as to cause no delay in the work or in the activities of separate contractors. The engineer/designer will indicate approval of shop drawings and product data submitted to the engineer by stamping such submittals "APPROVED" with a stamp. Submitted shop drawings shall be initialed or signed by the contractor, showing the date and the contractor's legitimate firm name.
 - 1. By submitting shop drawings, and product data, the contractor represents that he or she has carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the contractor has checked, coordinated, and verified that information contained within shop drawings, and product data, to conform to the requirements of the work and of the contract documents. The engineer/designer remains responsible for the design concept expressed in the contract documents as defined herein.
 - 2. The engineer's/designer's approval of shop drawings, and product data submitted by the contractor shall not relieve the contractor of responsibility for deviations from requirements of the contract documents, unless the contractor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The contractor shall continue to be responsible for deviations from requirements of the contract

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documents not specifically noted by the contractor in writing, and specifically approved by the engineer in writing.

3. The engineer's/designer's approval of shop drawings, and product data shall not relieve the contractor of responsibility for errors or omissions in such shop drawings, and product data.
4. The engineer's/designer's review and approval, or other appropriate action upon shop drawings, and product data is for the limited purpose of checking for conformance with information given and design intent expressed in the contract documents. The engineer's/designer's review of such submittals is not conducted for the purpose of determining accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the contractor as required by the contract documents. The review shall not constitute approval of safety precautions or of construction means, methods, techniques, sequences, or procedures. The engineer's/designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

- B. Perform no portion of the work requiring submittal and review of shop drawings, and product data until the engineer/designer has approved the respective submittal. Such work shall be in accordance with approved submittals.
- C. Submit shop drawings, and product data as a complete set within thirty (30) days of award of contract.
 1. For initial submission and for resubmission required for approval, submit electronically copies of each item.
 2. Illegible submittals will not be checked by the engineer.
- D. Product Data: A Bill of Materials shall accompany the product data submittal. Provide catalog cut sheets and information for the following:
 1. Wire, cable, and optical fiber.
 2. Outlets, jacks, faceplates, and connectors.
 3. All metallic and nonmetallic raceways, including surface raceways, J-Hooks, Cable Tray, Ladder Rack and associated hardware.
 4. Terminal blocks and patch panels.
 5. Enclosures, racks, and equipment housings.
 6. Over-voltage protectors.
 7. Splice housings.

1.6 PROJECT RECORD DOCUMENTS:

- A. Submit project record documents and drawings (As-Built's), at conclusion of the project, to include the following:
 1. As-Built Drawings: The drawings are to include outlet locations. Outlet locations shall be identified by their sequential number as defined through coordination with the owner and designer. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The designer will provide floor plans in electronic AutoCAD formats on which as-built construction information can be added. These documents will be modified accordingly by the Structured Cabling contractor to denote as-built information as defined above and returned to the Designer prior to delivery to the Owner. The Contractors shall annotate the base drawings and return a hard copy (same plot size as originals) and electronic AutoCAD format.

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2. Equipment Room (ER), Telecommunication room (TR) and the Demarcation Room (DEMARC) shall include termination detail sheets, and scaled equipment layouts.
3. Cross-connect and/or splice schedules including entrance point, main cross-connects, intermediate cross-connects, and horizontal cross-connects.
4. Warranty documents for equipment, if applicable.
5. Electronic Copper certification test results.
6. Electronic Optical fiber power meter/light source and/or OTDR test results.

1.7 QUALITY ASSURANCE

- A. The following manufacturer's cabling solutions are approved for the work of this section:
 1. CommScope Uniprise
 2. CommScope Systimax
 3. Hubbell
 4. Ortronics
 5. Panduit
 6. Belden
 7. Leviton
 8. Seimon Company
- B. The contractor shall have worked satisfactorily for a minimum of five (5) years on systems of this type and size. The Structured Cabling contractor must be certified and be in good standing with the Manufacturer's partners agreement. Installers must be certified and approved by the manufacturer with a minimum of three years' experience installing that manufacturer.
- C. Upon request by the engineer/designer, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.
- D. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.
- E. Where equipment and materials have industry certification, labels, or standards (i.e., UL Underwriters Laboratory, NEMA National Electrical Manufacturers Association), this equipment shall be labeled as certified or complying with standards.
- F. Material and equipment shall be new, and conform to grade, quality, and performance standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.
- G. Subcontractors shall assume all rights and obligations that the contractor assumes toward the owner and engineer/designer.

1.8 WARRANTY

- A. Structured Cabling Contractor shall warranty all installed products, for a period of not less than one (1) year from the date of first beneficial use or system acceptance. Acceptance of the product to initiate the one-year warranty, shall be in writing from the engineer/designer or the owner.

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- B. The Structured Cabling Contractor, through the manufacturer, unconditionally guarantee in writing, the materials, equipment, and workmanship for a period of not less than a twenty (20) year warranty.
- C. Contractor shall transfer manufacturer's warranties to the owner in addition to the General System Guarantee. Submit these warranties on each item in list form with shop drawings. Detail specific parts within equipment that are subject to separate conditional warranty. Warranty proprietary equipment and systems involved in this contract during the guarantee period. Final payment shall not relieve you of these obligations.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials and equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the owner and/or General Contractor for secure storage of equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

1.10 SEQUENCE AND SCHEDULING

- A. Structured Cabling Contractor shall be subject to the project schedule defined by the owner or the General Contractor. All efforts shall be made to meet the identified deadlines.
- B. Structured Cabling Contractor is required to coordinate with other trades to insure the project requirements are reviewed and met within the timeline defined by the schedule. Lack of coordination with other trades does not relieve the Contractor of meeting the milestone dates.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide products of manufacturers as named in individual articles.
- B. Where no manufacturer is specified, provide products from manufacturers in compliance with the specified performance requirements.

2.2 FABRICATION

- A. Fabricate custom-made equipment with careful consideration given to aesthetics, technical, and functional aspects of equipment and its installation.

2.3 SUITABILITY

- A. Provide products that are suitable for intended use, including, but not limited to environmental, regulatory, and electrical. All cabling, copper riser, and fiber shall be provided with suitable insulation for installing in an air plenum.

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2.4 VOICE/DATA/VIDEO BACKBONE CABLE

- A. Solid copper, 24 AWG, 100Ω balanced Category 3, unshielded twisted-pair (UTP) backbone cable, in sizes as indicated on the drawings, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA568B.2.
 - 1. Note: Listed Type CMR, CMP, MPR and/or MPP (as required by local codes or AHJ).
- B. Single mode 8.3μm diameter (OS1, OS2), armored, tight-buffered optical fiber, with fiber counts as indicated on drawings, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA568B.3
 - 1. Note: Listed type OFNP, OFNR, OFCR, and/or OFCP (as required by local codes or AHJ).
 - 2. Generic Characteristics
 - a. The indoor optical fiber cable shall be available with up to twelve 900-micron tight-buffered, 250-micron fibers placed in a color-coded sub-unit bundle with aramid strength elements.
 - b. The indoor optical fiber cable shall meet or exceed the performance criteria found in ANSI/TIA-568-C.3.
 - c. The indoor optical fiber cable shall have sequential length markings printed on the cable jacket.
 - d. All singlemode fibers shall be pigtail spliced into a rack mounted optical fiber enclosure or wall-mounted enclosure.
 - e. The loss of fiber shall not exceed 1.0 dB per kilometer @ 1550 nm and 1.0 dB per kilometer @ 1310 NM.
- C. Multi-mode 50μm, (OM3, OM4 or OM5) diameter, armored, tight-buffered optical fiber, with fiber counts as indicated on drawings, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA568B.3
 - 1. Note: Listed type OFNP, OFNR, OFCR, and/or OFCP (as required by local codes or AHJ).
 - 2. Generic Characteristics
 - a. The indoor optical fiber cable shall be available with up to twelve 900-micron tight-buffered 250-micron fibers placed in a color-coded sub-unit bundle with aramid strength elements.
 - b. The indoor optical fiber cable shall meet or exceed the performance criteria found in ANSI/TIA-568-C.3.
 - c. Maximum attenuation dB/Km @ 850/1300 nm: 3.5/1.5
 - d. Minimum overfilled modal bandwidth: 1500 MHz-km @ 850 nm.
 - e. Minimum overfilled modal bandwidth: 500 MHz-km @ 1300 nm.
 - f. Minimum effective modal bandwidth: 2000 MHz-km @ 850nm.
- D. All fiber strands shall be terminated using fusion spliced pigtails with LC-UPC style connectors.

2.5 UNDERGROUND TELECOMMUNICATIONS CABLE (Optical Fiber)

- A. Multi-mode 50μm diameter, armored, gel-free optical fiber, with number of usable fibers as shown on drawings, which meet or exceed the mechanical and transmission performance specifications listed in ANSI/TIA/EIA568B.3 and ANSI/TIA/EIA758(A).
- B. Single-mode 8.3μm diameter, armored, gel-free optical fiber, with number of usable fibers as shown on drawings, which meet or exceed the mechanical and transmission performance specifications listed in ANSI/TIA/EIA568B.3 and ANSI/TIA/EIA758(A).

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2.6 TERMINATION BLOCKS

- A. Product(s) as approved by the engineer/designer: Wiring blocks are to be in following configurations:
 - 1. 100 pair - 110 punch down blocks.
 - 2. 300 pair – 110 punch down blocks.

2.7 PATCH PANELS

- A. 19 in. rack mountable, 24 port, 8pin modular to insulation displacement connector (IDC) meeting Category 6A performance standards, and pinned to T568 A and B standards.

2.8 WALL MOUNTED OPTICAL FIBER PATCH PANELS

- A. Wall-mounted optical fiber termination panel with ample fiber capacity, hinged door, cable strain relief, slack storage, and two 12 port LC connector panels with adapters.

2.9 RACK MOUNTED OPTICAL FIBER TERMINATION PANEL

- A. 19 in. rack mounted 24 port rack-mounted optical fiber termination panel with cable strain relief, grounding lugs, slack storage and two 12port duplex LC or approved alternative connector panels with adapters and provisions for fiber management.

2.10 SPLICE TRAYS

- A. Sized for fibers, nonmetallic with clear plastic cover, 12 fiber splice capacity, compatible with splice enclosure and splicing method.

2.11 OPTICAL FIBER CONNECTORS

- A. Ceramic tipped field installed LC connectors, which meet or exceed the performance specifications in ANSI/TIA/EIA568B.3.

2.12 OPTICAL FIBER JUMPERS

- A. 50/125 μm (and/or 8.3 μm single-mode optical fiber jumper cable, 1 m long with 3.0 mm Duplex LC optical fiber connectors on each end.

2.13 OPTICAL FIBER PIGTAILS

- A. 50/125 μm (and/or 8.3 μm single-mode optical fiber pigtail 1 m long with 3.0 mm single LC optical fiber connectors on one end.

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2.14 OPEN FRAME EQUIPMENT TWO POST RACK

- A. Open frame, 19 in. equipment rack, 7-ft. overall height with flange base, mounting rails drilled front and back and tapped to EIA standards.

2.15 LISTED BUILDING ENTRANCE PROTECTORS

- A. Building entrance terminal utilizing a two (2) ft fuse link between the outside cable plant splice and the protector module with IDC type input and output terminals, 50 pair capacity and female mounting base, equipped with 230-volt solid state protector modules.
- B. Provide sufficient protector modules to completely populate all building entrance terminals.

2.16 LADDER RACK:

- A. Products: Subjects to compliance with requirements, provide the following:
 - 1. Chatsworth Products, Inc.
 - 2. Cooper-B-line
 - 3. Cable Management Solutions, Inc.
 - 4. Cablofil Inc.
 - 5. Cope - Tyco/Allied Tube & Conduit.
 - 6. GS Metals Corp.
- B. Ladder Rack Specifications:
 - 1. Configuration: 12-inch wide UL Classified Universal Cable Runway, manufactured from 3/8-inch wide by 1-1/2-inch high tubular steel with 0.065-inch wall thickness.
 - 2. Include Junction Splice Kit, Butt Splice Kit, and additional materials to comply with configuration shown on Drawings.
 - 3. Rung Spacing: 9 inches O.C.
 - 4. Minimum Cable-Bearing Surface for Rungs: 7/8-inch width with radius edges.
 - 5. No portion of the rungs shall protrude below the bottom plane of side rails.
 - 6. Structural Performance of Each Rung: Capable of supporting a maximum cable load, with a safety factor of 1.5, plus a 200-lb concentrated load, when tested according to NEMA VE 1.
 - 7. Minimum Usable Load Depth: 4 inches.
 - 8. Straight Section Lengths: 10 feet except where shorter lengths are required to facilitate tray assembly.
 - 9. Fitting Minimum Radius: 24 inches.
- C. Ladder Rack Accessories:
 - 1. Splicing Assemblies: Bolted type using serrated flange locknuts.
 - 2. Splice Plate Capacity: Splices located within support span shall not diminish rated loading capacity of cable tray.
 - 3. Cable straps used for attaching cable bundles to the ladder rack cross members must be reusable with a Velcro, at least 3/4-inch wide, and sized for cable bundles that are 2-inches, 3-inches or 4-inches in diameter.
 - 4. Cable retaining posts used to keep cable from falling off of the side of the ladder rack shall be manufactured from 1-inch by 1/2-inch tubular steel with .065-inch wall thickness. Cable retaining posts will be 8-inches high and will attach to the side stringer of the ladder rack with included hardware. The top of the cable retaining posts will be fitted with a rubberized end cap to protect cables.

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5. End caps used to cover the ends of ladder rack will be manufactured from a black fire-retardant rubberized material. End caps will be sized for 3/8-inch wide by 1-1/2 -inches high side stingers and will be sold in pairs.
6. End closing kits used to cover the end of ladder rack will be manufactured from 3/8-inch wide by 1-1/2- inches high tubular steel with .065-inch wall thickness. Kits will consist of a bar cut to match the width of the ladder rack and the hardware required to attach the bar to the end of a length of ladder rack.
7. Radius drops used to create a radius to form cables over as the cables exit or enter the ladder rack will be manufactured from aluminum extrusion. The extrusion will be formed in a 90° arc with a minimum bend radius of 3-inches. Radius drops will attach to either the side stringer or the cross member of the ladder rack using a clevis pin. Radius drops will include 11/2-inch high cable spools that attach to the top of the radius drop to guide cables.
8. Movable cross members used to support cross member radius drops in between welded cross members on ladder rack will be manufactured from 3/8-inch by 1-1/2-inches aluminum bar. Movable cross members will attach to ladder rack at the side stringers with included hardware so that the location of the movable cross member can be adjusted. Moveable cross member will support a cross member radius drop.
9. Auxiliary support brackets used to support cables that should be physically separated from the cables in the ladder rack will be made from 1/8-inch by 1-inch steel bar. The bracket will be L-shaped and will attach to the side stringer of the ladder rack. The bracket will hang below the ladder rack a minimum of 4-inches. The bracket support surface will be 4-inches long.

- D. Ladder rack shall be attached to the top of the frame to deliver cables to the frame. Provide a junction plate at top of equipment rack and required cable runway to attach rack to cable runway around the perimeter of the TR. Install the junction plates above all equipment racks and attach to cable runway. The frame should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.

2.17 CABLE TRAY:

- A. Products: Subjects to compliance with requirements, provide the following:

1. Chatsworth Products, Inc.
2. Cooper-B-line
3. WBT
4. Legrand
5. Snake Tray
6. Hubbell
7. Hoffman
8. Cablofil Inc.
9. TJ Cope - Tyco/Allied Tube & Conduit.

- B. Wire-Basket Cable Trays

1. Configuration: Wires are formed into a standard 2-by-4-inch wire mesh pattern with intersecting wires welded together. Mesh sections must have at least one bottom longitudinal wire along entire length of section.
2. Materials: High-strength-steel longitudinal wires with no bends.
3. Safety Provisions: Wire ends along wire-basket sides (flanges) rounded during manufacturing to maintain integrity of cables and installer safety.
4. Sizes:
 - a. Straight sections shall be furnished in standard 10ft. lengths.

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- b. Wire-Basket Depth: 2-inch usable loading depth by 12 inches wide.
 - 5. Connector Assemblies: Bolt welded to plate shaped to fit around adjoining tray wires and mating plate. Mechanically joins adjacent tray wires to splice sections together or to create horizontal fittings.
 - 6. Connector Assembly Capacity: Splices located within support span shall not diminish rated loading capacity of cable tray.
 - 7. Hardware and Fasteners: ASTM F 593 and ASTM F 594 stainless steel, Type 316.
 - C. Cable Trays are the preferred pathways for supporting Horizontal telecommunications cables. Cable Trays shall be provided from the Telecommunications Rooms to support the horizontal cabling.
 - D. Bond each section of the cable tray to the ground bus, or bond each section to the next and then to the ground bus per NEC. There must be a path from each section to ground. Location of the cable tray shall be identified by ICT during the design phase of the project.
 - E. The actual cable tray size(s) shall be determined during the design phase of the project. The cable tray shall be installed in accordance with the applicable electrical code. The cable tray is to be dedicated for use only by low-voltage cabling systems. Cable tray should be trapeze supported or wall mounted. If wall mounted, additional threaded rod supports should be provided from the ceiling to the outer edge of the wall mounted tray. Center support cable trays shall not be accepted.
 - F. Cable Trays should have radius components installed at all inside corners to prevent minimum cable bending radius from being exceeded.
 - G. Cable Tray Accessories: Fittings: Tees, crosses, risers, elbows, and other fittings as indicated, of same materials and finishes as cable tray
- 2.18 CABINETS:
- A. Manufacturer:
 - 1. Chatsworth
 - 2. Greatlakes
 - 3. Hubble
 - 4. Hoffman
 - 5. Belden
 - 6. CommScope
 - 7. B-Line
 - B. Size:
 - 1. Height: 45U (84")
 - 2. Width: Networking (24")
 - 3. Depth: [inimum 42" Preferred 48"
 - C. The low voltage contractor shall install 1 cabinet in the TR. The cabinet shall be mated, and will have the interior walls installed. The position of the cabinets shall be located in accordance with telecommunication design drawings.
 - D. Number and location of the cabinets will be supplied during the design phase of the project.

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- E. A good working environment for a telecommunications room includes at least three feet of clear space extending out from the front of the equipment mounted on a wall and at least three feet out from the front and back of equipment mounted in a rack with two feet of clearance on each side.
- F. Multi-mount Equipment mounting channels will be 3" deep and punched on the front and rear flange with the EIA-310-D Universal hole pattern to provide 45 rack-mount spaces for equipment. Each mounting space will be marked and numbered on the mounting channel
- G. When assembled with top and bottom angles, equipment-mounting channels will be spaced to allow attachment of 19" EIA (or 23" only when specified and approved by the IT department) rack-mount equipment. Attachment points will be threaded with 12-24 roll-formed threads. The rack will include assembly and equipment-mounting hardware. Each rack will include 50 each combination pan head, pilot point mounting screws
- H. The assembled 4 post racks will measure 7' (84") high, 20.3" wide and 42" deep. The sides (webs) of the equipment-mounting channels will be punched to allow attachment of vertical cable managers along the sides of the rack or for rack-to-rack baying.
- I. All equipment cabinets shall be grounded and isolated. Frames shall be grounded to the TGB using appropriate hardware per the grounding and bonding specifications. The ground and bonding will meet local code requirements and will be approved by the Authority Having Jurisdiction (AHJ)

2.19 CABLE MANAGEMENT

- A. Manufactures
 - 1. Chatsworth
 - 2. Belden
 - 3. Panduit
 - 4. Ortronics
 - 5. Hubble
- B. Vertical Cable Management Channels:
 - 1. The cable manager shall be sized to match cabling requirements. The initial quantity of cables within the cable manager shall not exceed a whole number value equal to 40% of the interior area of the cable manager.
 - 2. Epoxy-polyester hybrid powder coat finish, black in color.
 - 3. Vertical cable management panels shall have front and rear channels, with covers.
 - 4. Double sided 6 inch wide by 72 inches tall.
- C. Horizontal Cable Management Channels:
 - 1. The cable manager shall be sized to match cabling requirements. The initial quantity of cables within the cable manager shall not exceed a whole number value equal to 40% of the interior area of the cable manager.
 - 2. Epoxy-polyester hybrid powder coat finish, black in color.
 - 3. Provide horizontal crossover cable manager at the top of each relay rack, with a minimum height of two rack units each
 - 4. Double sided 2U wide
- D. The front of the vertical cable manager will have cable openings along both sides of the trough. The openings will be formed by evenly-spaced T-shaped cable guides. The T-shaped cable

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guides will be made from a composite plastic material (not metal) and will have rounded edges to protect cables. When the cable manager is attached to a rack/frame, each cable opening will align with a rack-mount space (RMU) on the rack/frame. Each opening will pass a minimum of 24 each .25" OD patch cords

- E. Attach vertical cable managers to the side of the rack/frame using the manufacturer's installation instructions and included hardware.
- F. The color of the rack(s)/frame(s) and cable manager(s) must match.
- G. Doors/covers should be attached to the cable manager and in the closed position after cabling is complete.

PART 3 EXECUTION

3.1 PRE-INSTALLATION SITE SURVEY

- A. Prior to start of systems installation, meet at the project site with the owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets, as well as primary pathways.
- B. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.

3.2 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

- A. Be responsible for safekeeping of your own and your subcontractors' property, such as equipment and materials, on the job site. The owner assumes no responsibility for protection of above-named property against fire, theft, and environmental conditions.

3.3 PROTECTION OF OWNER'S FACILITIES

- A. Effectively protect the owner's facilities, equipment, and materials from dust, dirt, and damage during construction.
- B. Remove protection at completion of the work.

3.4 INSTALLATION

- A. Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by the owner's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required, interconnecting wiring of system components, equipment alignment and adjustment, and other related work whether or not expressly defined herein.

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- B. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.
- C. Adhere to manufacturer's published specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
 - 1. Where manufacturer does not provide bending radii information, minimum-bending radius shall be 15 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.
- D. Penetrations through floor and fire-rated walls shall utilize intermediate metallic conduit (IMC) or galvanized rigid conduit (GRC) sleeves and shall be fire stopped after installation and testing, utilizing a firestopping assembly approved for that application.
- E. Install station cabling to the nearest Intermediate Distribution Frame unless otherwise noted.
- F. Installation shall conform to the following basic guidelines:
 - 1. Use of approved wire, cable, and wiring devices.
 - 2. Neat and uncluttered wire termination.
- G. Attach cables to permanent structure with suitable attachments at intervals of 48 to 60 inches. Support cables installed above removable ceilings.
- H. Install adequate support structures for 10 foot of service slack at each TR.
- I. Support riser cables every three (3) floors and at top of run with cable grip.
 - 1. Limit number of four-pair data riser cables per grip to fifty (50).
- J. Install cables in one continuous piece. Splices shall not be allowed except as indicated on the drawings or noted below:
 - 1. Provide over-voltage protection on both ends of cabling exposed to lightning or accidental contact with power conductors.

3.5 GROUNDING

- A. Grounding shall conform to ANSI/TIA/EIA 607(B) Commercial Building Grounding and Bonding Requirements for Telecommunications, National Electrical Code®, ANSI/NECA/BICSI568 and manufacturer's grounding requirements as minimum.
- B. Bond and ground equipment racks, housings, messenger cables, and raceways.
- C. Connect cabinets, racks, and frames to single-point ground which is connected to building ground system via #6 AWG green insulated copper grounding conductor.
- D. The low-voltage Contractor is responsible for the coordination with the electrical contractor connecting the Telecommunication Main Grounding Busbar (TMGB) to the electrical grounding bar.

3.6 LABELING

- A. The administration standard as presented in the ANSI/TIA/EIA-606A addresses the need for an independent and scalable labeling standard in the administration of telecommunications cabling infrastructure. In order to standardize and administer the entirety of the infrastructure it is necessary to have a complete standard for labeling so that technicians do not need to learn new standards as they move from one building to the next. Contractors need a concrete labeling scheme so that they can make their products as useful as possible.
- B. According to the ANSI/TIA/EIA-606-A standard, the low voltage contractor shall consider a class 3 labeling standard. Most campuses have multiple buildings and outside pathways that must be documented. All identifiers shall be independent and scalable. All labels read from the general to the specific from left to right.
- C. There are three significantly different pieces to consider in developing a system for the administration of any complex system: naming, labeling, and supporting documentation.
- D. Naming is the process of assigning every piece of identifiable equipment a unique identifier to differentiate it from others. Unique names enable the use of databases in administration of the supporting documentation. In this system, the style of a name differs based upon the type of equipment named. This allows a quick and easy identification of the hardware.
- E. Labeling is the process of affixing tags to the hardware so that their names can be determined. The tag affixed to the hardware is not always the full name of the piece of infrastructure. As will become apparent later, a number of pieces of a name can be determined based upon the location of the hardware. Because of this, it is not necessary to affix the entire name to every piece of hardware. This distinction becomes critical when the piece of equipment is too small to accept a label that contains its full name.
- F. Supporting documentation is the key to any successful administration. Naming and labeling assure that everyone on campus can use the same basic keys for accessing information about the infrastructure but the supporting documentation holds all the information that individuals will need to know: fiber-optic strand count, termination points, last test date, copper pair counts, manufacturer of the cable and so on. This document deals primarily with the naming and labeling process in order to support clients understanding of the network infrastructure. Aside from the deliverables required by as built documentation requirements, the contractor is not responsible for maintaining any documentation of campus infrastructure.
- G. Naming: All equipment or hardware shall have distinct styles of naming telecommunications infrastructure. They shall all use the same identifiers in the construction of a name but differ in their order and presentation.
- H. Every component of the telecommunications infrastructure has a unique and independent identifier.

Label Target	Example	Explanation
Building	0012	Campus building number or name.
Telecommunication room	1A	1-first floor, A – Telecom. room on that floor
Communication cabinet	PCC001	Designates Pathway Communication Cabinet #1
Maintenance Hole	PMH001	Maintenance Hole #1
UTP Communication Panel	A	Designates communication panel A

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Label Target	Example	Explanation
Other Communication Panel	1	Designates communication panel 1, most commonly a fiber panel
Panel Module	1	Module #1 in a communication panel
Port	1	Port #1 in a module or communication panel

- I. Labeling shall conform to ANSI/TIA/EIA606(B) or ISO/IEC 14763-2-1 standards. In addition, provide the following:
 1. Label each outlet with permanent self-adhesive label with minimum 3/16 in. high characters.
 2. Label each cable with permanent self-adhesive label with minimum, 1/8 in. high characters, in the following locations:
 - a. Inside receptacle box at the work area.
 - b. Behind the communication closet patch panel or punch block.
 3. Use labels on face of data patch panels. Provide facility assignment records in a protective cover at each telecommunications closet location that is specific to the facilities terminated therein.
 4. Use color-coded labels for each termination field that conforms to ANSI/TIA/EIA606(B) standard color codes for termination blocks.
 5. Labels shall be machine-printed. Hand-lettered labels shall not be acceptable.
 6. Label cables, outlets, patch panels, and punch blocks with room number in which outlet is located, followed by a single letter suffix to indicate particular outlet within room, i.e., S2107A, S2107B. Indicate riser cables by an R then pair or cable number. Contractor is to submit labeling scheme for approval.
 7. Mark up floor plans showing outlet locations, type, and cable marking of cables. Turn these drawings over to the owner four (4) weeks prior to move in to allow the owner's personnel to connect and test owner-provided equipment in a timely fashion.
 8. One (1) sets of printed as-built drawing shall be delivered to the owner within four (4) weeks of acceptance of project by the owner. A set of as-built drawings shall be provided to the owner in electronic form and utilizing AutoCAD software that is acceptable to the owner. Note: HAND DRAWN AS-BUILTS ARE NOT ACCEPTABLE.

3.7 TESTING

- A. Testing shall conform to ANSI/TIA/EIA568 -1-14 B standard.
- B. Test each pair and shield of each cable for opens, shorts, grounds, and pair reversal. Correct grounded, and reversed pairs. Examine open and shorted pairs to determine if problem is caused by improper termination. If termination is proper, tag bad pairs at both ends and note on termination sheets.
 1. Perform testing of copper cables with tester meeting ANSI/TIA/EIA568B.1 requirement.
 2. If horizontal cable contains bad conductors or shield, remove and replace cable.

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- C. Initially test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA52614B: OFSTP14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA526.7 Measurement of Optical Power Loss of Installed Singlemode Fiber Cable Plant. Measured results shall be plus/minus 1 dB of submitted loss budget calculations. If loss figures are outside this range, test cable with optical time domain reflectometer to determine cause of variation. Correct improper splices and replace damaged cables at no charge to the owner.
 - 1. Cables shall be tested at 850 and 1300 nm for multimode optical fiber cables. Cables shall be tested at 1310 and 1550 nm for singlemode optical fibers.
 - 2. Testing procedures shall utilize "Method B" – One jumper reference.
 - 3. Bi-directional testing of optical fibers is required.
- D. Perform optical time domain reflectometer (OTDR) testing on each fiber optic conductor. Measured results shall be plus/minus 1 dB of submitted loss budget calculations.
 - 1. Submit printout for each cable tested.
 - 2. Submit compact disk with test results and program to view results.
- E. Where any portion of system does not meet the specifications, correct deviation and repeat applicable testing at no additional cost to the owner.

3.8 FIELD QUALITY CONTROL

- A. Employ job superintendent or project manager during the course of the installation to provide coordination of work of this specification and of other trades, and provide technical information when requested by other trades. The contractor shall maintain a current RCDD® (Registered Communications Distribution Designer) on-staff and he/she shall be responsible for the overall quality control during installation, equipment setup, and testing.
- B. All installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

END OF SECTION 27 1005

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SECTION 32 1813 SYNTHETIC TURF SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Included Division 2 through Division 49 technical specifications.

1.2 SUMMARY

- A. This section covers the furnishing of professionally sealed design documents, all labor, materials, and equipment necessary to install, in place, a synthetic in-filled turf system for the outdoor athletic field, which shall meet performance criteria outlined below. The installation of all new materials shall be performed in strict accordance with these specifications, the manufacturer's instructions, and the approved design documents.
- B. Scope of work: The general extent of the work and project limits is shown on the Drawings and can include but may not be limited to the following.
 - 1. Synthetic PE Infill Turf System Design, submittals, and construction
 - 2. Attachment of turf to perimeter drain or other edge condition.
 - 3. Infill systems
 - 4. Field marking design and logos, inlaid lines, and numbers.
 - 5. Maintenance Instructions, furnished and recommended equipment list, program protocols.
 - 6. Warranty (Minimum 8 years)

1.3 REGULATORY REQUIREMENTS AND REFERENCES

- A. Regulatory requirements and references follow the current guidelines set forth by the various governing bodies listed below. Unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable. Where discrepancies are noted between these various governing bodies, the rules of the NFSA shall be enforced.
 - 1. American Society for Testing and Materials (ASTM)
 - 2. Consumer Products Safety Commission (CPSC)
 - 3. International Amateur Athletic Federation (IAAF)
 - 4. National Collegiate Athletic Association (NCAA)

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1.4 QUALITY ASSURANCE

- A. Conform to requirements of applicable technical specifications, general conditions, and special provisions.
- B. Synthetic Turf Surface Installer: Synthetic turf surface installation shall be provided by an experienced contractor which shall have installed a minimum of five (5) outdoor in-fill synthetic turf athletic surfaces of at least 50,000 square feet that have been in use for two (2) or more years. Provide a written description of each facility including name, address, date installed, and phone number of Project Manager.
 - 1. Any contractor not able to meet the above requirement shall submit a statement of considerations that may qualify him/her as a qualified bidder. Items include, but are not limited to:
 - a. Resumes of personnel allocated for this project.
 - b. Listing of type of equipment to be used on construction.
 - c. All contractors shall submit a proposed schedule for the project.
 - d. List of outdoor in-fill synthetic turf athletic surfaces of at least 50,000 square feet installed over the last five (5) years. Provide a written description of each facility including name, address, date installed, and phone number of project manager.
 - e. Note that this list may be altered as deemed appropriate by Owner's Representative or Owner.
 - 2. The Owner's Representative shall review this information and make a recommendation to the Owner to accept or reject the qualifications of the proposed contractor. The Owner's decision will be final.
- C. Observation of Synthetic Turf Surface Manufacturing: The synthetic turf provider shall inform the Owner's Representative of the source of the manufacturer of the turf. The Owner's Representative shall observe, in person, the manufacturing of the turf at the location of the source of the manufacturer. Contractor shall give the Owner's Representative at least five (5) days notice before the manufacturing of the turf is begun for travel time.
- D. Source Limitations: Obtain synthetic turf surface including turf yarn and carpet backing from a single manufacturer, supplier, or vendor. Provide additional components including anchoring materials, seaming products, binders, adhesives, resilient underlayment (where applicable) from single sources.
- E. The synthetic turf provider and installation contractor shall inspect the sub-base and provide written approval and acceptance of the sub-base before the installation of the synthetic turf surfacing material. The synthetic turf provider shall provide a certification that the sub-base construction does not void any provision of the product warrantee. Commencement of work indicates acceptance of underlying substrates.

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F. Quality assurance testing for in place system performance shall include the following:

1. In-place G-max rating of the synthetic turf system per ASTM F355 & F1936, Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials, Test Method A. System G-max rating shall not be less than 70 nor exceed 130 at installation. System shall not exceed a G-Max rating of 165 during the warranty period. Specify G-max test locations, such as centerline of playing field and other areas subject to more usage, environmental conditions during the test, and other subjective parameters that might significantly affect the test results.
2. The Synthetic Turf Surface Provider shall provide eight (8) separate G-max tests: one at field acceptance, and the other seven on or near the original date of substantial completion and throughout the 8-year warranty period. Testing shall be performed by an independent, third party testing firm that has no manufacturer related ties or sponsorship.
3. Conformance Survey of Infill Materials: The Owner's Representative shall perform a conformance survey on a 20-foot grid over the finish surface of the entire playing field using a dial gauge. After review, the survey will be returned to Contractor with areas out of tolerance noted for correction. Contractor will be required to correct areas out of tolerance and certify that corrections have been made prior to final acceptance. Tolerance for Infill Materials shall be within 1/4 of an inch from the elevations shown on the plans.

1.5 SUBMITTALS – TO BE PROVIDED WITH BID

A. Provide Bidder Qualifications according to the Statement of Qualifications documents. Bid Submittals will be used as a basis to verify product quality, performance, and installation procedures. Provide the following information with the bid for evaluation of compliance with these specifications. As a minimum, the proposer will provide written certification of ASTM product test results listed in the specification applying to the artificial turf system.

1. Provide Bidder and Manufacturers Qualifications with the Bid Submittal.
2. Contractor shall provide a 1 square foot assembled sample of selected turf product along with component samples of infill material, as a part of Bid submission.
3. Contractor shall provide an analysis and representation of the infill material composition including:
 - a. Rubber / Sand % (certified)
 - b. Gradation SBR Rubber Crumb or EPDM
 - c. Minimal granule sizing
4. Contractor shall provide documentation as to sources of component materials and related characteristics.
5. Contractor shall provide complete description and documentation that selected system meets or exceeds all performance criteria contained in this specification. **(Provide the following product performance and test results as part of the bid proposal submission.)**
 - a. Synthetic Turf Carpet

PROPERTY	ASTM	VALUE
Total Weight (oz/sy)	D-418	
Width of Rolls		15 foot min.

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b. Yarn Characteristics

PROPERTY	ASTM	VALUE
Pile Yarn Type		Thiolon XP or Approved Equal
UV Stability	ISO 4892-2	Remains within performance limits
Yarn Linear Denier	D-1907	8500 - 10,000
Yarn Breaking Strength	D-2256	
Yarn Melting Point – Degrees F	D-276 S26	
Maximum Yarn Elongation	D-3575	%
Colorfastness to light	AATCC	4-5
Resin		C-8

c. Tuft Characteristics

PROPERTY	ASTM	VALUE
Tuft Construction		
Total Pile Weight (oz/sy)	D-5848	
Maximum Pile Height	D-5848	2.25 in
Minimum Pile Height	D-418	2.0 in
Stitch Gauge	D-5848	
Tuft Bind (without infill)	D-1335	Lbs.
Grab Tear Strength	D-5034	
Abrasion Resistance	F-1015	
Density (specific gravity)	D-792	
Break Strength in Length	D-5034	
Break Strength in Width	D-5034	
Cycle Test (Roll Stud) Results shall be provided by yarn manufacturer		9,000 Cycles of more prior to showing wear on fibers.

d. Primary Backing Characteristics

PROPERTY	ASTM	VALUE
Type/Composition		
Weight (oz/sy)	D-5848	
Coating Type		
Coating Weight (oz/sy)	D418	

e. Secondary Backing Characteristics (if required)

PROPERTY	ASTM	VALUE
Type/Composition		
Weight (oz/sy)	D-5848	
Coating Type		
Coating Weight (oz/sy)	D418	

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f. In-fill Turf Materials

PROPERTY	ASTM	VALUE
Rubber Granules Composition		Black SBR
Rubber Sieve Analysis	C-136	0.5 mm – 1.0 mm
Rubber Quantity		(lbs/ft)
Total Ash Content		5% – 8 %
Sand Granules Shape		
Sand Sieve Analysis	C-136	
Sand Quantity		(lbs/ft)
Total Infill weight	D-5848	oz /sy
Depth of Infill		1.5 in – 1.75in
Tolerance of infill depth		.25 in
Length of Yarn above Infill		¾" +/- 1/8"
% Sand - % Rubber		20% Sand Min. 80% Rubber Max.

g. Synthetic In-fill Turf System Performance

PROPERTY	ASTM	VALUE
Relative Abrasiveness	F1015	> 20
Shock Absorbency		
Shock Attenuation	F-355 GMAX	<165 GMAX over life of warranty
Sports Shoe Traction	F-1551	
Water Permeability	F-1551	> 14" / hr.
Ball Rebound Properties	F-1551	30-42% (absolute)
System Warranty	Minimum	8 Years
Pill Burn Test	D-2859	Pass
Infiltration rate	BS-7044-4	
Critical Radiant Flux	E-648	BTU / hr. / sf.
Wear Resistance	NEP 90-108	
Leachate / Extract Parameters		
Airborne Toxicology		
Maintenance Equipment Provided to Owner		

B. Warranty Representations for all system components.

1. The Contractor shall submit documentation of its full-term Manufacturer's Warranty which guarantees usability and playability, on a non-prorated basis. Warranty will cover all materials, workmanship, and entire system performance.
2. The Contractor warrants that during the period of the warranty all materials & components, and the installed system meets or exceeds the product and performance specifications set forth herein.

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3. The turf shall not fade in that the synthetic turf material shall remain a uniform color with no significant loss of color during the warranty period.
4. The length and weight of the face yarn or pile shall not have been decreased by more than 10% per year according to ASTM D418, nor exceed 50% during the warranty period.
5. Synthetic turf system Gmax values for all points of sampling or testing, as determined and set forth using the ASTM F355 protocol and additional requirements of the warranty, shall be 70 – 130 G's upon installation and shall not exceed 165 G's during the warranty period. Any increase shall not exceed 5% in any single year.
6. The exposed fiber will not wear excessively as represented by a loss of more the 5% per year of the exposed fiber (fiber above the infill).
7. Fabric seams shall remain attached and shall not separate or become unattached.
8. The synthetic system shall drain vertically a minimum of 10" per hour without visible surface ponding.

1.6 SUBMITTALS - TO BE PROVIDED FOLLOWING AWARD OF CONTRACT

- A. Proposer for the artificial field turf installation shall provide the following within 7 days of execution of contract to enable appropriate technical evaluation of the characteristics of the system.
 1. Materials List: List all materials by manufacturer's name and model number, material test results. Only materials and items of equipment so approved shall be used.
 2. Shop Drawings: Submit shop drawings for the synthetic in-fill turf system including edge details, marking plans and details and color sample, sections, and accessories.
 3. Contractor shall provide a field marking and dimensioning plan for review and approval.
 4. Operational and Maintenance Data: Submit manufacturer's data in a three-ring binder, labeled, and indexed. Describe procedures, annual costs, required equipment and their costs, and projected manpower to accomplish required maintenance procedures. Include requirements for replacement of infill materials.
 5. Provide statements and documentation for surface resilience factors and maintenance protocols for:
 - a. Assessment
 - b. Restoration
 6. Provide statements and documentation for surface cleaning factors and maintenance protocols for:
 - a. Fluid Spills
 - b. Animal waste
 - c. Pathogens
 - d. Food & Debris
 - e. Vandalism
 - f. Flammability
 7. Surface impact testing protocol to enable recognition of the threshold of failure within warranty period.
 8. Independent testing and lifespan information for field system components critical to hardness, uniformity, and severity performance.
 9. Temporary Markings – Application of marking materials and removal of temporary athletic markings.

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1.7 DELIVERY, STORAGE AND HANDLING

- A. Handle and store all products of this Section in such a manner as to protect them from damage at all times.
- B. The contractor shall coordinate storage of products on-site in an orderly manner not to impede the work or reasonable use of the project site.
- C. Deliver materials in original, unopened containers with original labels intact and legible, which state the guaranteed analysis.
- D. Bulk Material:
 - 1. Coordinate delivery and storage of bulk material with Owner's Representative.
- E. Confine materials to neat piles in areas acceptable to Owner's Representative.

1.8 PROJECT CONDITIONS

- A. Comply with the environmental protection and safety requirements of the Owner and all governmental authorities having jurisdiction.
- B. Keep dust to a minimum.
- C. Maintain streets and walks free of mud, dirt, and debris.
- D. Restoration of Damaged Property: When or where in the execution of the work under this contract, any direct or indirect damage injury is done to public or private property by or on account of any act, omission, neglect, or misconduct, the Contractor, at no additional cost to the Owner, shall restore the damaged property to a condition equal to that existing before damage or injury was done.
 - 1. Repair, rebuild or otherwise restore property as directed or make good such damage or injury in an acceptable manner.
- E. Playing Field Construction operations shall not be conducted under the following conditions:
 - 1. Material temperature is below 32 degrees F.
 - 2. Ambient air temperature is below 32 degrees F.
 - 3. High winds
 - 4. Excessively wet conditions.
 - 5. Conditions exist, or are pending, that will be unsuitable for the installation of the system as set forth by the manufacturer.
- F. Construction Surveying: The Contractor shall be responsible for all construction surveying required for the proper layout and location of all work covered hereunder.

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- G. As provided for in other Division 32 Sections, the in-fill synthetic turf field subgrade shall be a smooth, clean surface free of any debris and/or loose soil to the tolerances specified. Before compaction, the subgrade shall have been raked clean of any extraneous material including, but not limited to, branches, twigs, and other vegetative material; large cobbles, frozen or clumped soil, glass, plastic, or other debris.
- H. The drainage gravel shall not be installed until all finished grading, and drainage work is completed, in order to avoid the mixing of other soil and materials with the drainage material.
- I. Avoid contamination of materials during construction and installation of synthetic turf field.
- J. Work under this Section shall include all fees, permits, licenses, and required inspections by concerned governing agencies.

1.9 OWNER'S INSTRUCTIONS

- A. Owner's personnel to be instructed by the Field Contractor on the care and maintenance of the synthetic turf system.
- B. Notify Owner's Representative when instructions are to be given.
- C. Provide Five (5) complete maintenance manuals to be given to the Owner; one maintenance manual to be given to the Owner's Representative.
- D. Furnish copies of manufacturer's literature, samples, certifications, or laboratory analytical data for the following items.

1.10 SOURCE/QUALITY ASSURANCE

- A. Proposers Qualifications: Synthetic turf surface installation shall be provided by an experienced contractor which shall have installed a minimum of five (5) outdoor in-fill synthetic turf athletic surfaces of at least 50,000 square feet that have been in use for two (2) or more years. Provide a written description of each facility including name, address, date installed, and phone number of Project Manager.
- B. Manufacturer of the proposed turf system must have in place a minimum of five (5) installations meeting the requirements of these specifications that have been in use for 5 years. Provide a written description of each facility including name and phone number of Owner's Representative.
- C. Any contractor not able to meet the above requirement shall submit a statement of considerations that may qualify him/her as a qualified bidder. Items include, but are not limited to:
 - 1. Resumes of personnel allocated for this project.
 - 2. Listing of type of equipment to be used on construction.
 - 3. All contractors shall submit a proposed schedule for the project.
 - 4. List of outdoor in-fill synthetic turf athletic surfaces of at least 50,000 square feet. Provide a written description of each facility including name, address, date installed, and phone number of project manager.
 - 5. Note that this list may be altered as deemed appropriate by Owner's Representative or Owner. The Owner's decision will be final.

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PART 2 - PRODUCTS

2.1 SYNTHETIC FIELD SYSTEM DESCRIPTION

- A. A synthetic turf carpet consisting of a PE dual polyethylene fiber tufted into a permeable double-layered primary backing with a secondary backing.
 - 1. Approved Synthetic Turf Products
 - a. The Motz Group - Crossflex 50 oz 2.25"
- B. An infill system comprised of ground rubber and mixed silica sand or approved equal. The infill material fills the voids between the fibers, allowing the fibers to remain vertical and non-directional.
- C. Edge Restraint: The method for restraining the edge of the synthetic turf shall be hidden, stable, non-degradable, and not visible when construction is complete.
 - 1. All edge conditions must be addressed, including where the synthetic turf abuts asphaltic or concrete surface conditions.

PART 3 - EXECUTION

3.1 CERTIFICATION

- A. A written "Certification of Acceptance of the Base Construction" is required from the Manufacturer prior to installation of the synthetic surfacing material. This certification shall include but not limited to the acceptance of:
 - 1. The subgrade and stone base construction is completely acceptable and warrantable for the application of work specified in this section.
 - 2. The materials and method of installation of the base materials are in conformance with manufacturer's current requirements for subsurface base construction and synthetic turf application.
 - 3. The base construction is suitable for the work to proceed with the assurance that the final installation of the work under this section and other related sections will result in a high-quality athletic surface fully warranted for the period and use specified herein.
 - 4. All discrepancies between the required materials, application and tolerance requirements noted by the installer shall be brought to the attention of the Owner and Owner's Representative. Failure to immediately notify the Owner and Owner's Representative of any prior work that does not meet the required specifications for installation of the athletic turf surfacing system shall be considered as acceptance by the installer on the non-conforming work.
 - 5. The system and its component materials and the necessary methods of construction are in compliance with all governing jurisdictions for construction of this project.

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3.2 INSTALLATION OF TURF

- A. Installation of synthetic turf to be completed by qualified personnel approved by manufacturer, meeting the qualifications standards set forth in this document. All installation work shall be done in strict accordance with the manufacturer's current installation instructions and approved design documents for this project.

3.3 REPLACEMENT

- A. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and Owner's Representative at no additional cost to the Owner.
- B. The manufacturer will provide Twenty (75) linear feet of one (1) normal roll width to the Owner surplus carpet for repairs caused by vandalism or acts of God not covered by the warranty.

3.4 SYNTHETIC IN-FILL TURF SYSTEM

- A. The contractor shall verify subgrade compaction and elevation conditions will be adequate to achieve field performance.
- B. Conformance with building codes: System shall meet applicable codes and ordinances.

3.5 EXAMINATION

- A. Verify that area is ready to receive work, and excavations, dimensions, and elevations are as indicated on Drawings.
- B. Beginning of installation means acceptance of existing conditions.

3.6 CARPET AND IN-FILL

- A. After acceptance of the constructed base (granular drainage blanket), the carpet is to be laid out on the site and consecutive panels to be sewn together at the seams using procedures approved by the manufacturer using a subcontractor approved by the manufacturer.
- B. Edges and seams are to be constructed in strict accordance with manufacturer's instructions.
- C. The infill material is to be approved by the manufacturer and shall be inserted according to the manufacturer's approved procedures by qualified installers.
- D. The bristles of any brooms used, either during the original installation, or in subsequent maintenance, shall be of nylon only, shall under no circumstances include any metal and must be approved by the manufacturer.

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3.7 BONDING OF MATERIAL SURFACES

- A. The adhesive bonding of all system material components shall provide a permanent, tight, secure, and hazard free athletic playing surface. The following components, at a minimum, shall meet this requirement. Bonding of:
1. Shock absorbing pad to the base material (if required).
 2. Turf to pad.
 3. Turf to seam tape (if tape is used).
 4. All turf to terminal edges.
- B. The bonding design and work shall be such that all surface joints and seams shall remain as required throughout the warranty period as a minimum.

3.8 SEAM SPACING

- A. All seams widths are to be the absolute minimum and as approved. All seams (butt joints) shall be traverse to the field direction of play. No head seams are allowed on the playing surface. All lateral seams (if sewn) are to be sewn with a double stitch.

3.9 FIELD MARKINGS

- A. Field marking, lines, yard line numbers, hashes and logos shall be AS APPROVED BY OWNER prior to fabrication and installation.
- B. Field of play perimeter lines and field lines shall be tufted into the turf carpet as shown on the plans. Numbers logos and hash markings are to be inlaid prior to insertion of the infill.

3.10 MATERIAL STOCKPILE

- A. Stockpile the following additional materials for Owner's future use at an on-site location to be determined.
1. 75 linear feet of a 15-foot-wide roll of tufted carpet.
- B. Arrangements to be made for the Owner to purchase additional quantities of the infill mixture for addition to the field if and when the need arise.

Material	Quantity
Infill Material	One-half Super Bag

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3.11 RECORD DRAWINGS

- A. Maintain progress drawings on the construction site at all times during installation of the synthetic field system. Make a daily record of all work installed each day until completion of the work.

3.12 CLEAN UP

- A. Remove all debris, excess materials, etc. from site and leave work in clean, orderly, and acceptable condition.

END OF SECTION 321813

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SECTION 32 1823.39 SYNTHETIC RUNNING TRACK AND FIELD SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This section covers all labor and materials required to install a first-class track & field surface. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings (see section 32 18 23.40) as designated in these specifications.

1.3 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the International Association of Athletics Federations (IAAF) and the National Collegiate Athletic Association (NCAA). Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced.

1.4 SUBMITTALS

- A. The following information must be submitted by the Track & Field Synthetic Surfacing Contractor prior to installation.
 - 1. Test results, from an IAAF certified laboratory, verifying manufacturer's Track & Field Synthetic Surfacing product meets the IAAF Performance Specifications for Synthetic Surfaces.
 - a. The same components from the test sample must be used in the installed surface. No substitutions will be allowed.
 - 2. On-site Project Manager/Superintendent Qualifications:
 - a. The project manager/superintendent will be on-site during all surfacing operations. Substitution of project manager/superintendent shall not be permitted.
 - b. A list of completed facilities, minimum of 5, which are certified to meet NCAA rules & regulations in the past 5 years utilizing the product specified in these specifications. The Track & Field Synthetic Surfacing Contractor's project manager/supervisor responsible for the completed facilities must supervise this project.
 - 3. Standard printed specifications of the track & field synthetic surfacing system that is being installed.

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4. Installation process and requirements for subbase (stone, asphalt and concrete) and any conditions that may limit the track & field synthetic surface installation or affect quality of installation.
5. Temperature/climatic conditions limiting quality of installation.
6. Standard specification and application for recommended subbase primers, crack filler, patching and leveling material.
7. Three product samples, a minimum of 6" x 6" in size, the same color, texture, thickness, etc. of the same type of surfacing to be installed for this project. This must be a representative sample of the product. This sample must be submitted and approved by the Owner, prior to installation. At completion of the project this sample may be used as a comparison to judge the quality of the installed product.
8. Material safety data sheets on all individual components of the product being installed.
9. Provide a letter stating the Track & Field Synthetic Surfacing Contractor reviewed the asphalt specification and are accepting the specification as correct. Upon completion of the Asphalt paving and prior to installation of the track & field synthetic surface, the Track & Field Synthetic Surfacing Contractor will provide a letter accepting the installed asphalt and stating it is suitable to receive the track & field synthetic surface.
10. Letter from synthetic surfacing manufacturer approving the installer/applicator of the synthetic surface listed in these specifications.
11. Written notice and acceptance that all inground field event equipment is installed as per the Contract Documents and the rules of the sport.

B. The following information shall be submitted after completion of the specified work:

1. Provide a copy of the Track & Field Synthetic Surface vendor's standard Warranty noting any exceptions to the Warranty information included in this Specification Section.
2. Provide a Care and Maintenance manual for the Owner's use in maintaining the synthetic surfacing.

1.5 QUALITY ASSURANCE

A. Prior to installation, or during installation or at completion of installation of the synthetic surfacing if the Owner has any question or doubt about the quality or formulation of the material, the Track & Field Synthetic Surfacing Contractor shall have the product tested. If the product meets these specifications, then the Owner shall pay for the cost of the testing; if the product does not meet these specifications, then the Track & Field Synthetic Surfacing Contractor shall pay for the testing. Any material failing to meet specifications will be replaced with new material at the Track & Field Synthetic Surfacing Contractor's expense.

B. Slopes & Tolerances

1. The maximum lateral inclination permitted for the track across the full width of the track, preferably toward the inside lane, and across all runways, shall not exceed 1:100, one percent (1%).
2. The maximum overall downward inclination permitted in the running direction for the track, the running direction for all runways and the throwing direction for all landing sectors shall not exceed 1:1,000, one-tenth of one percent (0.1%). Inclination shall be measured by comparing the start and end points of the races that use the straightaway portion of the oval, the last 20 meters of the javelin runway, the start and end points of other runways, not to exceed 40 meters, and the full graded length of each landing sector.

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3. In the high jump approach and takeoff area, the maximum overall downward inclination of the last 15 meters shall not exceed 1:250, four-tenths of one percent (0.4%), in the running direction toward the center of the crossbar.
4. The surface of a throwing circle shall be level.
5. Depressions cannot exceed 3mm under a 1m straight edge or 6mm under a 4m straight edge.

1.6 SPECIAL PROJECT CONDITIONS

- A. The Track & Field Synthetic Surfacing Contractor will provide a project manager/superintendent on-site daily through the completion of the Track & Field Synthetic Surfacing Contractor's portion of the contract.
 1. The on-site project manager/superintendent shall remain on site through the completion of the project. Substitution of project manager/superintendent shall not be permitted.
- B. The Track & Field Synthetic Surfacing Contractor will provide a technician that will serve as a consultant to the Owner and Contractor during the Asphalt Paving, first reviewing the asphalt specification, accepting the specification as correct, and then, providing daily review and guidance of the construction of the Asphalt Paving which will directly affect the tolerances and longevity of the eventual synthetic surfacing installation.
- C. Prior to installing any concrete the Contractor must verify with the Track & Field Synthetic Surface manufacturer if any curing compounds or agents are allowed or acceptable.

1.7 SPECIFIC SCOPE OF WORK

- A. The Track & Field Synthetic Surfacing Contractor shall verify the entire track & field subbase and all events to determine that:
 1. The synthetic surface for the 400 meter track oval will accurately fit onto the Asphalt Paving base
 2. That slopes and elevations meet required tolerances
 3. No bird baths exceed the allowable limits as specified
 4. The track & field areas will meet or exceed the rules of the sport
- B. The Track & Field Synthetic Surfacing Contractor shall provide all labor, materials and equipment to perform the following work:
 1. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings (see Section 32 18 23.40) as designated in these specifications.
 2. Review Bidding documents and specifications, provide technical assistance, and approve Asphalt Paving base work as required in the specifications.
 3. Review and approve installation of all field event inground equipment before any track & field synthetic surfacing is installed as specified and shown on the project drawings.
 4. Brush and wash down all areas to be surfaced, as often as necessary during the installation of the track and field synthetic surface.
 5. Repair all birdbaths as required in these specifications.

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6. Install removable track & field synthetic surfacing (full pour polyurethane) plugs in all pole vault boxes, long/triple jump take-off boards (1" x 1" corner notches in one short side) and throw circles (cut plugs in half); apply synthetic surfacing to the steeplechase water jump cover and junction box covers.
7. Install special material (i.e. foam, board, etc.) in slot drain opening to prevent polyurethane from entering the opening. The drainage slot opening shall be neatly trimmed out (vertical cuts), after polyurethane installation, to allow proper drainage to occur. No polyurethane is allowed on the inside of the drainage slot opening. This shall apply only if the precast slot drain is installed.
8. Repair all damaged areas, clean-up all glue, and remove excess polyurethane, primers and similar products. All trim cuts shall be neat and clean; on all curves the trim-out shall follow a radius line for accuracy and neatness.

1.8 WARRANTY/GUARANTEE

- A. General: Warranties / Guarantees specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the Contractor under requirements of the Contract Documents.
- B. The following are inclusive of the term "Track & Field Synthetic Surface" for provisions of the guarantee:
 1. All slopes & tolerances as required in this specification.
 2. Synthetic track & field surface product as specified and represented by the Track & Field Synthetic Surface Manufacturer.
 3. All materials and products specified.
 4. All line markings installed in accordance with the Contract Documents.
- C. Track & Field Synthetic Surface Installer Guarantee: Provide in writing a "Full System Guarantee" agreement. The President/Principal(s) of both the Track & Field Synthetic Surface Installer and the Track & Field Synthetic Surface Manufacturer (if different) shall sign this document and it shall include the following:
 1. All work executed under this section will be free from defects of material and workmanship for the specified period from date of Substantial Completion/Acceptance of the Owner.
 2. Any defects will be remedied on written notice at no additional cost to the Owner.
 3. The warranty shall not be prorated.
 4. All material shall be guaranteed to the extent that the surfacing:
 - a. Has been manufactured, applied and will perform in accordance with these and the manufacturer's specifications;
 - b. Will hold fast and/or adhere to the primer, asphalt, concrete, edging, filler, patches or overlay materials;
 - c. Is Ultra-Violet resistant, will not bubble, blister, fade, crack, or wear excessively during the warranty period.
- D. The Track & Field Synthetic Surfacing Contractor shall, in the presence of the Owner, inspect the track and field synthetic surfacing each year until the end of the warranty period, or at any time requested by the Owner. Any defects in workmanship or materials (at no fault of the Owner) shall be repaired at the expense of the Track & Field Synthetic Surfacing Contractor to the satisfaction of the Owner.

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- E. Contractor shall not be held liable for incidental or consequential damages. The Track & Field Synthetic Surface Warranties described shall be conditioned upon:
 - 1. Owner shall maintain track as described in the Owners Manual submitted by the Contractor to the Owner.
- F. The Warranty does not cover any defect, failure, damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty or loads exceeding the Contractor's recommendations.
- G. Warranty period to be ten (10) years

PART 2 - PRODUCTS

2.1 TRACK & FIELD SYNTHETIC SURFACE

- A. The track and field synthetic surface shall be as per the manufacturer's specifications, plus the following requirements and where discrepancies exist, they shall be brought to the attention of the Owner or Owner's representative prior to Bidding or Installation.
 - 1. Approved Synthetic Running Track and Field Surfacing Products:
 - a. Beynon – BSS 1000
 - b. Conica – Conipur F-1000
 - c. Rekortan – M99
 - d. Stobitan Full Pour System
 - e. Approved Equal
- B. Two component full depth polyurethane with an EPDM embedded wearing layer.
 - 1. Materials
 - a. Primers – Polyurethane based primers specifically formulated to be compatible with the base and track surfacing material.
 - b. Rubber Granules (Base Layer) – Styrene Butadiene Rubber (SBR). The rubber granules shall be recycled SBR rubber, processed, chopped, and graded to match product specifications. Granules containing any traces of fiber or steel are unacceptable.
 - c. Polyurethane - This consists of a two-component polyurethane which is self-leveling and compounded from a proprietary, pigmented polyol and MDI based, "TDI Free", isocyanate. The liquid polyurethane shall contain no mercury, lead, or any other heavy metals added by design.
 - d. EPDM Granulate - The EPDM granules shall be graded to match product specifications. The EPDM granules must match the Polyurethane in color.
- C. Color:
 - 1. Base Color: Red
 - 2. Add Alternate Color: Purple

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- D. Patching Material: All materials must be approved materials and compatible with the synthetic surface.

PART 3 - EXECUTION

3.1 INSPECTION AND ACCEPTANCE

- A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.
- B. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 INSTALLATION REQUIREMENTS

- A. The following installation requirements must be met by the Track & Field Synthetic Surfacing Contractor:
 - 1. Installation by synthetic surface manufacturer approved project manager/superintendent applicators and technicians. Local laborers may be hired for non-technical work, only.
 - 2. Priming - The primer shall be spray-applied in accordance with the manufacturer's specifications. Only those areas which can be installed the same day should be primed. All concrete areas to be surfaced shall receive manufacturer's approved primer.

3.3 SURFACE INSTALLATION

- A. Installation of two component full depth polyurethane with an EPDM embedded wearing layer (full pour system)
 - 1. Thickness to match sample submitted to IAAF certified testing laboratory. (See Item 1.4 – A.1. of this section)
 - 2. Base Layer
 - a. The rubber granules and UV stabilized elastomeric polyurethane shall be metered and mixed together on site and installed to match product specifications.
 - 3. Wearing layer
 - a. Flow apply the two component polyurethane by using a notched trowel or squeegee.
 - b. Broadcast to excess with colored EPDM rubber ensuring all of the coating is covered. After initial cure the excess rubber granules are removed by means of mechanical sweeper.
 - c. The final wearing layer shall be a dense matrix of EPDM granules embedded into the polyurethane with no "bald" spots.

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3.4 TIMING, LIMITATIONS, AND CONDITIONS AFFECTING INSTALLATION

- A. Weather and Climate: If in the opinion of the synthetic track surfacing manufacturer or the Owner, weather and climatic conditions are having or will have an adverse effect on installation; work shall be delayed until the adverse condition has passed.

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- B. Adjacent and Concurrent Construction: Installation shall not take place until the completion of the adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or synthetic track surfacing manufacturer, would be harmful to the track material. Under specific direction of the Owner, the Track & Field Synthetic Surfacing Contractor may be allowed to cover the track material with an approved covering if such harmful construction operations must occur after the track material has been installed.

END OF SECTION 321823.39

SECTION 32 3113
CHAIN LINK FENCES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provision and installation of PVC coated and painted fence framework, fabric and accessories, gates and related hardware.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 32 13 13 Concrete Paving.

1.3 REFERENCES/STANDARDS

- A. Where American Society for Testing and Materials (ASTM) standards are referenced, they are made a part of this Section unless otherwise noted. Such standards shall be the current issues and standards.

1.4 SUBMITTALS

- A. Shop Drawings: Include complete details of fence and gate construction, fence height, post spacing, sizes, dimensions and unit weights of framework, and concrete footing details. Actual samples and certificates of compliance may be requested.

1.5 QUALITY ASSURANCE

- A. Qualifications: Contractors or subcontractors performing work under this Section shall be qualified to do such work and hold the appropriate registration, license, or other permit as required by state or local law.

1.6 JOB CONDITIONS

- A. Site Inspection: Contractor shall familiarize him/herself with the site, the plans, the specifications, special provisions, and plan requirements, and is responsible for calling any discrepancies or special problems to the attention of the Engineer.
- B. Protection:
 - 1. Protect, maintain, and restore bench marks, monuments, and other reference points affected by this work. If such items are displaced or destroyed by this work, they will be reestablished by a licensed surveyor at no expense to the Owner. After items have been permanently set, certify the work and furnish certification to the Engineer/Owner.

C. Coordination

1. Contractor shall coordinate with the Engineer/Owner for vital systems affected prior to commencement of work.
2. Contractor shall coordinate with other trades affected by the work.

D. Sequencing/Scheduling: Contractor shall keep him/herself informed of the construction progress of all other Contractors and/or subcontractors working on the project, particularly where they affect his/her work, and shall coordinate his/her work with that of other Contractors to ensure efficient and orderly progress of the work.

E. Construction Stakes

1. Construction stakes shall be set to mark the general location, alignment, and elevation of the work. The Contractor shall assume full responsibility for dimension and elevations from such stakes.

1.7 WARRANTIES/GUARANTEES

- A. The guarantee period as required by the General Conditions shall apply.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Framework: Type I Steel Pipe.

1. Type I - Schedule 40 steel pipe with 1.8 ounces of zinc coating per square foot of surface area conforming to Standard Specification ASTM F1083; or,
2. All coatings to be applied inside and out after welding.
3. Pipe shall be straight, true to section, and conform to the following weights:

Pipe Size Outside Diameter	Type I Weight Lbs./Ft
1-5/8"	2.27
2"	2.72
2-1/2"	3.65
3"	5.79
3-1/2"	7.58
4"	9.11
6-5/8"	18.97

4. Piping to be black in color.

B. Fabric—PVC Coated

1. Fabric shall be 9-gauge core wire and have a PVC coating fusion-bonded over zinc coated steel wire. Fabric shall meet ASTM F668 Type 2B specifications. Fabric to be woven in 2 inch diamond mesh and knuckled at both top and bottom.
2. Fabric to be black in color.

2.2 COMPONENTS

A. Fence Posts:

Type I – II

Fabric Height	Line Post O.D.	Terminal Post O.D.	Nominal Pipe Size
Under 6'	2"	2-1/2"	2"
6' to 9'	2-1/2"	3"	2-7/8"
9' to 12'	3"	4"	3-1/2"

B. Gate Posts:

Single Gate Width	Double Gate Width	Post O.D. Type II	Nominal Pipe Size
Up to 6'	Up to 12'	3"	2-1/2"
7' to 12'	13' to 25'	4"	3-1/2"

C. Rails and Braces: 1-5/8 inches O.D. (nominal pipe size 1-1/4 inch).

D. Gates: Frame assembly of 2 inch O.D. pipe Type I with welded joints. Weld areas repaired with zinc-rich coating applied per manufacturer's directions. Fabric to match fence. Gate accessories, hinges, latches, center stops, keepers and necessary hardware of quality required for industrial and commercial application. Latches shall permit padlocking.

E. Fittings:

1. Post Caps - Pressed steel, cast iron or cast aluminum alloy designed to fit snugly over posts to exclude moisture. Supply cone type caps for terminal posts and loop-type for line posts. All fittings to conform to ASTM F626.
2. Rail and Brace Ends - Pressed steel, cast iron, or cast aluminum alloy, cup-shaped to receive rail and brace ends.
3. Top Rail Sleeves - Tubular steel, 0.051 inch thickness x 7 inches long, expansion type.
4. Tension Bars - Steel strip, 5/8 inch wide x 3/16 inch thick.
5. Tension Bands - Pressed steel, 14 gauge thickness x 3/4 inch wide.
6. Brace Bands - Pressed steel, 12 gauge thickness x 3/4 inch wide.
7. Truss Rods - Steel rod, 3/8 inch diameter merchant quality with turnbuckle.

F. Tension Wire: Marcellled 7 gauge steel wire with minimum coating of 0.80 ounces of zinc or 0.40 ounces of aluminum per square foot of wire surface and conforming to ASTM A824.

- G. Tie Wires: Aluminum, 9 gauge, alloy 1100-H4 or equal.
- H. Hog Rings: Steel wire, 11 gauge, with a minimum zinc coating of 0.80 ounces per square foot of wire surface.
- I. All fencing and piping components to be black in color.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Installation to conform to ASTM F567
- B. Height: Provide height as indicated on construction documents.
- C. Post Spacing: Spacing of line posts at intervals not exceeding 10 feet.
- D. Post Setting: Set terminal, gate, and line posts plumb in concrete footings. Top of footing to be set below grade sufficient for finishes shown on drawing.
- E. Bracing: Brace gate and terminal posts back to adjacent line posts with horizontal brace rails and diagonal truss rods.
- F. Top Rail: Required on all fences. Install through line post loop caps connecting sections with sleeves to form a continuous rail between terminal posts.
- G. Middle Rail: Required on all fence 6 feet in height and greater. Run middle at mid height of fence.
- H. Bottom Tension Wire: Required on all fencing and shall run with grade.
- I. Fabric: Pull fabric taut with bottom selvage ½ inch above grade. Fasten to terminal posts with tension bars threaded through mesh and secured with tension bands at maximum 15 inch intervals. Tie to line posts and top rails with tie wires spaced at maximum 12 inches on posts and 24 inches on rails. Attach to bottom tension wire with top rings at maximum 24 inch intervals.
- J. Gates: Install gates plumb, level, and secure for full opening without interference. Anchor center stops and keepers in concrete.
- K. Fasteners: Install nuts for fittings, bands, and hardware bolts on side of fence opposite baseball playing field on interior fences, and inside of fence at main entry gate and maintenance access gate.
- L. All rails, posts, and connectors will be located outside the fields.
- M. Rake fencing with grade unless a field condition exists that will not allow. If stepping is required, clearly indicate on shop drawings for review and approval.

N. Footings to be 3,000 psi concrete at diameters and depths shown on drawings.

3.1 CLEANUP

- A. Upon completion of the work, Contractor shall remove from the site any excess construction materials, trash, or other items, leaving the site in a clean and finished condition acceptable to the Owner and governmental authorities having jurisdiction.

END OF SECTION 323113

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SECTION 32 9200 TURF AND GRASSES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Seeding
- 2. Sodding

1.3 DEFINITIONS

- A. Duff Layer: Surface layer of native topsoil composed mostly with decayed leaves, twigs, and detritus.
- B. Finish Grade: Planting soil finished surface elevation.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Pests: Living organisms found where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- F. Planting Soil: Use a standardized topsoil, existing native surface topsoil, existing in-place surface soil, imported topsoil, or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation for subsoil remaining after excavation is complete or top surface of a fill or backfill before planting soil is placed
- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms

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- I. Surface Soil: Soil present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 SUBMITTALS

- A. Product Data: For each product type indicated.
 - 1. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to this Project.
- B. Grass Seed Certification: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the production year and packaging date.
 - 1. Supply certification for each seed mixture for turfgrass sod. Include source identification and supplier's name and telephone number.
- C. Qualification Data: For qualified landscape Installer for project area disturbance, restoration or construction in excess of 1 acre
- D. Product Certificates: For soil amendments and fertilizers, from manufacturer
- E. Material Test Reports: For existing native surface topsoil, existing in-place surface soil, and, imported or manufactured topsoil

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment
 - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
 - 2. Experience: 5 years' experience in turf installation in addition to requirements in Division 01 Section - Quality Requirements
 - 3. Installer's Field Supervision: Require installer is to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Pesticide Applicator: State licensed, commercial
- B. Soil-Testing Laboratory Qualifications: An independent laboratory or university laboratory, recognized by the Tennessee Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating organic matter percentages; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content in the soil.

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1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
2. The soil-testing laboratory shall oversee soil sampling with depth, location, and sample numbers to be taken per Engineer's instructions. Three minimum representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
3. Report tested soil's suitability for turf growth.
 - a. Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1,000 square feet or volume per cubic yards for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants
 - b. Report presence of problem salts, minerals, or heavy metals including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, manufacturer's name, and address, and indicate conformance with state and federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.
- C. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, soil-bearing water runoff discharge, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each bulk fertilizer, lime, and soil amendment delivery with appropriate certificates.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

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1.8 MAINTENANCE SERVICE

- A. Initial Turf Maintenance Service: Provide full maintenance. Maintain as required in Part 3. Begin maintenance immediately after each area is planted, and continue until acceptable turf is established but not less than the following periods:
 - 1. Seeded Turf: 60-days from Substantial Completion date
 - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.
 - 2. Sodded Turf: 60-days from Substantial Completion date

PART 2 PRODUCTS

2.1 SEED

- A. Seed Quality:
 - 1. All seed shall be tested in a certified seed laboratory with certified results presented to the Engineer in writing prior to planting. All seed shall be of the previous season's crop, and the analysis date shall be within the past 7 months of the time used on the Project.
 - 2. All seed must be labeled and free from noxious weeds. All seed is to be at least 95% pure. Each seed type shall have a seed tag indicating botanical name, common name, purity, and germination. At the Contractor's option, seed mix may be pre-mixed by the source in the specified proportions. If pre-mixing is provided, obtain a certified copy of the mix, and include all seed tags for individual seeds along with the mixed seed.
 - 3. Fresh, clean, dry, new-crop seed complying with AOSA's "*Journal of Seed Technology; Rules for Testing Seeds*" for purity and germination tolerances
- B. Fescue Seed Mix (for areas disturbed by construction operations, not otherwise planted with sod, shrubs, or wildflower seed): Seed shall be true to name and meet the specifications in TDOT Section 801. Select hybrid for specific site conditions. Provide seed at a rate of 260 lbs. per acre.

2.2 TURFGRASS SOD

- A. Turfgrass Sod: Comply with Specifications for Turfgrass Sod Materials in TPI's "*Guideline Specifications to Turfgrass Sodding*." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.
- B. Turfgrass Species: Sod with fescue grass species with not less than 95% germination, not less than 95% pure seed, and not more than 5% other grasses. Bermuda sod may be permitted during summer months.
- C. Obtain solid sod from sources having growing conditions similar to the area to be planted.
- D. Sod shall be true to species name and type identified in the Plant Schedule.

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- E. Sod shall contain no more than 5% of other grasses.
- F. Sod shall be well-cultivated and weed, disease, and insect-free, of good texture and free from extraneous roots, stones, and other foreign matter.
- G. Sod shall contain no nutgrass. Remove sod with nutgrass from the site immediately.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Hay or straw mulch shall meet specifications set forth in TDOT Section 918.18.
 - 1. Fescue Seed Mix: Apply at the rates set forth in TDOT Section 918.18.
 - 2. Slope Seed Mix: For areas not subject to erosion, apply at a rate of 1.5 to 2.0 tons per acre.

2.4 PESTICIDES

- A. General: Use pesticide, registered and approved by U. S. EPA, acceptable to authorities having jurisdiction, and a type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling germination or growth of weeds within planted areas at the soil level directly below the mulch layer
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth for weeds which have already germinated

2.5 EROSION CONTROL BLANKETS MATERIALS

- A. The erosion control blankets shall be in accordance with TDOT's Specifications, Section 805.
- B. Contractor is to submit the manufacturer's application instructions and specifications for the erosion control blankets.
- C. Erosion control blankets shall meet TDOT Specifications, Section 918.28.
- D. EROSION BLANKET: Biodegradable straw/coconut fiber mat enclosed in a uniform, open plain weave of heavyweight photodegradable polypropylene netting, and related staples meeting TDOT Section 918.19 for slopes 3:1 or greater.
 - 1. SC150 as manufactured by North American Green and distributed by Jen Hill Construction Materials, Hendersonville, TN, or approved equal

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
 - 1. Verify no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
 - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 4. Uniformly moisten excessively dry soil which is not workable and is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Engineer and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
 - 2. Protect grade stakes until directed to remove them.
- B. Install erosion-control measures to prevent eroding or displacing soil and discharging soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. Limit turf subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a 4-inch minimum depth. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose.
 - 1. Spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
 - b. Add fertilizer and lime per soil test report.
 - c. Mix lime with dry soil before mixing fertilizer.

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- d. For Fescue Seed Mix Only: Add organic matter to provide 2 cubic yards/1,000 square feet uniformly over amended soil. Incorporate into the top 4 to 6 inch soil.
- 2. Spread planting soil for all turf areas to a 6-inch minimum depth, 12-inch minimum if over rock, but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately half the planting soil thickness over loosened subgrade. Mix thoroughly into top 4-inch subgrade. Spread remainder of planting soil.
 - b. Reduce planting soil elevation to allow for sod's soil thickness.
- C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
 - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 - 2. Loosen surface soil to at least a 6-inch depth. Apply soil amendments and fertilizers according to planting soil mix proportions, and mix thoroughly into soil's top 4-inches. Till soil to a homogeneous, fine texture mixture.
 - a. Apply fertilizer directly to surface soil before loosening.
 - 3. Remove stones larger than 1-inch in any dimension and sticks, roots, trash, and other extraneous matter.
 - 4. Legally dispose of waste material, including grass, vegetation, and turf off the property.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within +/-1/2-inch finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain Engineer's acceptance of finish grading. Restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation".
- B. For erosion-control blanket or mesh, install from top of slope working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- C. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
 - 3. Do not seed when the prepared surface is crusted, the ground is frozen, wet, or otherwise in a non-tillable condition.
- B. Wildflower Mixes:
 - 1. If seeding is not done at a time recommended by the seed distributor, sow seed areas with annual rye or millet cover crop prior to wildflower seeding. Verify with the seed distributor which cover crop to use based on the time of the year. If cover crop is provided, provide ground preparation prior to wildflower seeding in accordance with that noted above.
 - 2. Recommend seed sowing using double-box Brillion seeder able to simultaneously plant native grasses and wildflower seed. If multi-seeder is not used, seed grasses first, then wildflowers. For ease in obtaining even distribution, thoroughly mix wildflower seed with 50# sand per acre. Provide seeding in an alternate pattern, with a second pass perpendicular to the first.
- C. Moisten prepared seedbed before planting if the soil is dry. Water thoroughly and allow surface moisture to dry before sowing.
- D. Sow using approved mechanical seeders at the specified rate.
- E. Sow by using one half the seed to cover the entire area, then sow the other half perpendicular to achieve uniform coverage.
- F. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- G. Protect seeded areas with slopes exceeding 3:1 with erosion-control blankets.
- H. Protect seeded areas with slopes not exceeding 3:1 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
- I. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch or planting soil within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16-inch, and roll surface smooth.

3.6 SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Ensure finished grade is uniform. Correct any pockets or divots prior to placing sod to obtain a uniform and smooth surface.

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- C. Lay sod to form a solid mass with tightly fitted joints. Butt sod ends and sides; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between sod pieces; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across slope angles exceeding 3:1.
 - 2. Anchor sod on slopes exceeding 6:1 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.
- D. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum 1-1/2-inch depth below sod.

3.7 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas, and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur due to settling or other processes. Replace materials and turf damaged or lost in subsidence areas.
 - 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 - 3. Apply treatments as required to keep turf and soil free from pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize pesticide use and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a 4-inch depth.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and seed or mulch displacement. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate until established.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 the grass height. Remove no more than 1/3 the grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow Fescue to a 2-1/2 to 2-3/4-inch height. Lawns should have one mowing before receiving Substantial Completion.
- D. Turf Post Fertilization: Apply fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that will provide at least 1 pound/1,000 square feet actual nitrogen to turf area.

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3.8 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Engineer:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free from weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches.
 - 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free from weeds, open joints, bare areas, and surface irregularities.
 - 3. Satisfactory Wildflower and Grasses: Acceptance for areas designated to be seeded under this Section will be based on verifying a satisfactory stand of specified grass, legumes, and wildflowers as determined by an on-site observation by Engineer. A minimum 40 seeds per square foot presence shall be considered the basis for acceptance, as germination cannot be guaranteed prior to Substantial Completion.
- B. If a satisfactory stand is not established in any area, that area shall be reseeded until a satisfactory stand is established, without additional compensation.
- C. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.
- D. A satisfactory stand will be measured in acres or per thousand square feet accepted, including ground preparation, seeding, mulch, and erosion control, in accordance with Drawings and Specifications

3.9 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with others in proximity to the work. Notify Engineer before each application is performed.
- B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

3.10 CLEANUP AND PROTECTION

- A. Promptly repair any damage caused by pedestrian or vehicular traffic, erosion, or other causes.
- B. Maintain slope and control runoff.
- C. Promptly remove from paved areas all soil and debris created by turf work. Clean vehicle wheels before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- D. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period, and remove after plantings have been established.

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- E. Remove non-degradable erosion-control measures after grass establishment period.
- F. Should the Contractor fail to take immediate action upon written notice of unacceptable or damaged work, the Owner reserves the right to have the work performed by others at the Contractor's expense.

3.11 CONTRACT CLOSEOUT

- A. Provide in accordance with application Division 1 Section.

END OF SECTION 329200

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SECTION 33 4100 STORM UTILITY DRAINAGE PIPING

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. Section Includes:
 - 1. Pipe and fittings.
 - 2. Nonpressure transition couplings.
 - 3. Pressure pipe couplings.
 - 4. Expansion joints and deflection fittings.
 - 5. Cleanouts.
 - 6. Drains.
 - 7. Manholes.
 - 8. Channel drainage systems.
 - 9. Catch basins.
 - 10. Stormwater inlets.
 - 11. Pipe outlets.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings:
 - 1. Manholes: Include plans, elevations, sections, details, frames, and covers.
 - 2. Catch basins, stormwater inlets, and dry wells. Include plans, elevations, sections, details, frames, covers, and grates.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic manholes, pipe, and fittings in direct sunlight.
- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle manholes according to manufacturer's written rigging instructions.
- D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

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1.5 PROJECT CONDITIONS

- A. Locate all existing utilities prior to beginning work.

PART 2 - PRODUCTS

2.1 PE PIPE AND FITTINGS

- A. Corrugated PE Drainage Pipe and Fittings NPS 3 to NPS 10: AASHTO M 252M, Type S, with smooth waterway for coupling joints.
 - 1. Soiltight Couplings: AASHTO M 252M, corrugated, matching tube and fittings.
- B. Corrugated PE Pipe and Fittings NPS 12 to NPS 60: AASHTO M 294M, Type S, with smooth waterway for coupling joints.
 - 1. Soiltight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

2.2 PVC PIPE AND FITTINGS

- A. PVC Gravity Sewer Piping:
 - 1. Pipe and Fittings: ASTM F 679, T-2 wall thickness, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F 477, elastomeric seals for gasketed joints.
- B. PVC Pressure Piping:
 - 1. Pipe: AWWA C900, Class 150 PVC pipe with bell-and-spigot ends for gasketed joints.
 - 2. Fittings: AWWA C900, Class 150 PVC pipe with bell ends
 - 3. Gaskets: ASTM F 477, elastomeric seals.

2.3 CONCRETE PIPE AND FITTINGS

Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76.

- 1. Bell-and-spigot, or tongue-and-groove ends and gasketed joints with ASTM C 443, rubber gaskets, sealant joints with ASTM C 990 , bitumen or butyl-rubber sealant
- 2. Class III, Wall B.

2.4 NONPRESSURE TRANSITION COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.
- B. Sleeve Materials:

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1. For Concrete Pipes: ASTM C 443, rubber.
2. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
3. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

2.5 CLEANOUTS

A. Cast-Iron Cleanouts:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Josam Company.
 - b. MIFAB, Inc.
 - c. Smith, Jay R. Mfg. Co.
 - d. Tyler Pipe.
 - e. Watts Water Technologies, Inc.
 - f. Zurn Specification Drainage Operation; Zurn Plumbing Products Group.
2. Description: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.
3. Top-Loading Classification(s): Medium Duty.
4. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

B. Plastic Cleanouts:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Canplas LLC.
 - b. IPS Corporation.
 - c. NDS Inc.
 - d. Plastic Oddities; a division of Diverse Corporate Technologies, Inc.
 - e. Sioux Chief Manufacturing Company, Inc.
 - f. Zurn Light Commercial Products Operation; Zurn Plumbing Products Group.
2. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.6 DRAINS

A. Cast-Iron Area Drains:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Josam Company.
 - b. MIFAB, Inc.

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- c. Smith, Jay R. Mfg. Co.
 - d. Tyler Pipe.
 - e. Watts Water Technologies, Inc.
 - f. Zurn Specification Drainage Operation; Zurn Plumbing Products Group.
- 2. Description: ASME A112.6.3 gray-iron round body with anchor flange and round[**secured**] grate. Include bottom outlet with inside calk or spigot connection, of sizes indicated.
 - 3. Top-Loading Classification(s): Medium Duty] [Medium and Heavy Duty] [Heavy Duty].

B. Cast-Iron Trench Drains:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Josam Company.
 - b. MIFAB, Inc.
 - c. Smith, Jay R. Mfg. Co.
 - d. Tyler Pipe.
 - e. Watts Water Technologies, Inc.
 - f. Zurn Specification Drainage Operation; Zurn Plumbing Products Group.
- 2. Description: ASME A112.6.3, 6-inch wide top surface, rectangular body with anchor flange or other anchoring device, and rectangular secured grate. Include units of total length indicated and quantity of bottom outlets with inside calk or spigot connections, of sizes indicated.
- 3. Top-Loading Classification(s): [Medium Duty] [Heavy Duty] [Extra-Heavy Duty]

2.7 MANHOLES

A. Standard Precast Concrete Manholes:

- 1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
- 2. Diameter: 48 inches minimum unless otherwise indicated.
- 3. Ballast: Increase thickness of precast concrete sections or add concrete to base section as required to prevent flotation.
- 4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
- 5. Riser Sections: 4-inch minimum thickness, and lengths to provide depth indicated.
- 6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated, and top of cone of size that matches grade rings.
- 7. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
- 8. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
- 9. Steps: Individual FRP steps, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
- 10. Adjusting Rings: Interlocking HDPE rings with level or sloped edge in thickness and diameter matching manhole frame and cover, and of height required to adjust manhole

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frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.

11. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover, and height as required to adjust manhole frame and cover to indicated elevation and slope.

B. Manhole Frames and Covers:

1. Description: As defined on the drawings.

2.8 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350/350R , and the following:

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: **4000 psi** minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

C. Ballast and Pipe Supports: Portland cement design mix, **3000 psi** minimum, with 0.58 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

2.9 CATCH BASINS

A. Standard Precast Concrete Catch Basins:

1. Description: Of materials and dimensions according to local standards and as defined on the drawings.

B. Designed Precast Concrete Catch Basins: ASTM C 913, precast, reinforced concrete; designed according to ASTM C 890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for joint sealants.

1. Joint Sealants: ASTM C 990, bitumen or butyl rubber.
2. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.
3. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch diameter frame and grate.

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4. Steps: Individual FRP steps, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 60 inches.
 5. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.
- C. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include flat grate with small square or short-slotted drainage openings.
1. Size: 24 by 24 inches minimum unless otherwise indicated on the drawings.
 2. Grate Free Area: Approximately 50 percent unless otherwise indicated.

2.10 STORMWATER INLETS

- A. Curb Inlets: Made with vertical curb opening, of materials and dimensions according to local standards and as defined on the drawings.
- B. Gutter Inlets: Made with horizontal gutter opening, of materials and dimensions according to local standards and as defined on the drawings. Include heavy-duty frames and grates.
- C. Combination Inlets: Made with vertical curb and horizontal gutter openings, of materials and dimensions according to local standards and as defined on the drawings. Include heavy-duty frames and grates.
- D. Frames and Grates: Heavy duty, according to local standards and as defined on the drawings.

2.11 PIPE OUTLETS

- A. Head Walls: Cast-in-place reinforced concrete, with apron and tapered sides.
- B. Riprap Basins: Stone for rip-rap shall be as identified on the drawings.

2.12 POLYMER-CONCRETE CHANNEL DRAINAGE SYSTEMS

- A. General Requirements for Polymer-Concrete Channel Drainage Systems: Modular system of precast, polymer-concrete channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling. Include quantity of units required to form total lengths indicated.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide ACO Polymer Products, Inc. product as indicated on Drawings or comparable product.
- C. Non-Sloped-Invert, Polymer-Concrete Systems:
 1. Channel Sections:
 - a. Interlocking-joint, precast, modular units.

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- b. 4-inch minimum inside width, 8.50-inch minimum depth, rounded bottom, with outlets in quantities, sizes, and locations as indicated.
- 2. Slots:
 - a. Location: As indicated on Drawings.
 - b. ADA compliant 0.50-inch slot.
- D. Supports, Anchors, and Setting Devices: Manufacturer's standard unless otherwise indicated.
- E. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavation, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow.
 - 2. Install ductile-iron piping and special fittings according to AWWA C600 or AWWA M41.
 - 3. Install corrugated steel piping according to ASTM A 798/A 798M.
 - 4. Install corrugated aluminum piping according to ASTM B 788/B 788M.
 - 5. Install PE corrugated sewer piping according to ASTM D 2321.
 - 6. Install PVC cellular-core piping according to ASTM D 2321 and ASTM F 1668.
 - 7. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.

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8. Install concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure drainage piping according to the following:
 1. Join ductile-iron culvert piping according to AWWA C600 for push-on joints.
 2. Join ductile-iron piping and special fittings according to AWWA C600 or AWWA M41.
 3. Join corrugated steel sewer piping according to ASTM A 798/A 798M.
 4. Join corrugated aluminum sewer piping according to ASTM B 788/B 788M.
 5. Join corrugated PE piping according to ASTM D 3212 for push-on joints.
 6. Join PVC cellular-core piping according to ASTM D 2321 and ASTM F 891 for solvent-cemented joints.
 7. Join PVC corrugated sewer piping according to ASTM D 2321 for elastomeric-seal joints.
 8. Join PVC sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric-gasketed joints.
 9. Join nonreinforced-concrete sewer piping according to ASTM C 14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
 10. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
 11. Join dissimilar pipe materials with nonpressure-type flexible couplings.

3.4 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
 1. Use Light-Duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 2. Use Medium-Duty, top-loading classification cleanouts in paved foot-traffic areas.
 3. Use Heavy-Duty, top-loading classification cleanouts in vehicle-traffic service areas.
 4. Use Extra-Heavy-Duty, top-loading classification cleanouts in roads.
- B. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding earth grade.
- C. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.5 DRAIN INSTALLATION

- A. Install type of drains in locations indicated.
 1. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.
 2. Use Medium-Duty, top-loading classification drains in paved foot-traffic areas.
 3. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service areas.
 4. Use Extra-Heavy-Duty, top-loading classification drains in roads

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- B. Embed drains in 4-inch minimum concrete around bottom and sides.
- C. Fasten grates to drains if indicated.
- D. Set drain frames and covers with tops flush with pavement surface.
- E. Assemble trench sections with flanged joints.
- F. Embed trench sections in 4-inch minimum concrete around bottom and sides.

3.6 MANHOLE INSTALLATION

- A. General: Install manholes, complete with appurtenances and accessories indicated.
- B. Install precast concrete manhole sections with sealants according to ASTM C 891.
- C. Where specific manhole construction is not indicated, follow manhole manufacturer's written instructions.
- D. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches above finished surface elsewhere unless otherwise indicated.

3.7 CATCH BASIN INSTALLATION

- A. Construct catch basins to sizes and shapes indicated.
- B. Set frames and grates to elevations indicated.

3.8 STORMWATER INLET AND OUTLET INSTALLATION

- A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.
- B. Construct riprap of broken stone, as indicated.
- C. Install outlets that spill onto grade, anchored with concrete, where indicated.
- D. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.
- E. Construct energy dissipaters at outlets, as indicated.

3.9 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318.

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3.10 CHANNEL DRAINAGE SYSTEM INSTALLATION

- A. Install with top surfaces of components, except piping, flush with finished surface.
- B. Assemble channel sections to form slope down toward drain outlets. Use sealants, adhesives, fasteners, and other materials recommended by system manufacturer.
- C. Embed channel sections and drainage specialties in 4-inch minimum concrete around bottom and sides.
- D. Fasten grates to channel sections if indicated.
- E. Assemble channel sections with flanged or interlocking joints.
- F. Embed channel sections in 4-inch minimum concrete around bottom and sides.

3.11 CONNECTIONS

- A. Make connections to existing piping and underground manholes.
 - 1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 4500 psi.
 - 2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 4500 psi.
 - 3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes and structures by cutting into existing unit and creating an opening large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.
 - a. Use concrete that will attain a minimum 28-day compressive strength of 4500 psi unless otherwise indicated.
 - b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.
 - 4. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
 - 1. Use non-pressure-type flexible couplings where required to join gravity-flow, non-pressure sewer piping unless otherwise indicated.
 - a. Shielded flexible couplings for same or minor difference OD pipes.

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- b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
- c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

- 2. Use pressure-type pipe couplings for force-main joints.

3.12 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

- A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed.
 - 1. Close open ends of piping with at least 8-inch-thick, brick masonry bulkheads.
- B. Abandoned Manholes and Structures: Excavate around manholes and structures as required and use one procedure below:
 - 1. Remove manhole or structure and close open ends of remaining piping.
- C. Backfill to grade according to Section 31 20 00 - Earth Moving.

3.13 IDENTIFICATION

- A. Materials and their installation are specified in Section 31 20 00 - Earth Moving.

3.14 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 - 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems according to requirements of authorities having jurisdiction.

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3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.15 CLEANING

A. Clean interior of piping of dirt and superfluous materials. Flush with water.

END OF SECTION 334100

ABBREVIATIONS

ABBREVIATIONS	
&	AND
@	AT
+	PLUS or AND
#	POUND(S) or NUMBER
ABBR	ABBREVIATION
ABV	ABOVE
AFf	ABOVE FINISHED FLOOR
ADD	ADDENDUM
ADHV	ADHESIVE
ADJ	ADJACENT or ADJUSTABLE
ADMIN	ADMINISTRATION
AGG	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINIUM
AB	ANCHOR BOLT
ANOD	ANODIZED
APPROX	APPROXIMATE
ASI	ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS
ARCH	ARCHITECTURAL
AD	AREA DRAIN or ACCESS DOOR
ASPH	ASPHALT
ACPG	ASPHALT CONCRETE PAVING
ASSEM	ASSEMBLY
AUTO	AUTOMATIC
AVE	AVENUE
AVG	AVERAGE
B	BASE
BM	BEAM or BENCH MARK
BRG	BEARING
BEL	BELOW
BMK	BENCHMARK
BTWN	BETWEEN
BLK	BLOCKING
BLKG	BLOCKING
BD	BOARD
BS	BOTH SIDES
BW	BOTH WAYS
BOT	BOTTOM
BP	BRICK PAVER
BLDg	BUILDING
BLKHD	BULKHEAD
B.O.	BY OWNER
CIP	CAST IN PLACE
C	CAULKING
CLG	CEILING
CEM	CEMENTITIOUS
CTR	CENTER
C.L.	CENTERLINE
CM	CENTIMETERS
CR	CERAMIC
CT	CERAMIC TILE
CT	CERAMIC TILE
CHLBD	CHALK BOARD
CHAM	CHAMFER
CO	CHANGE ORDER or CLEANOUT
CHAN	CHANNEL
CHW	CHILLED WATER
CIR	CIRCLE
CIRC	CIRCUMFERENCE
CLR	CLEAR
CCTV	CLOSED CIRCUIT TELEVISION
CLOS	CLOSET
CW	COLD WATER
COL	COLUMN
CL	COLUMN LINE
COMP	COMPOSITION
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
COND	CONDITION
CND	CONDUCTIVE
CONF	CONFERENCE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CCD	CONSTRUCTION CHANGE DIRECTIVE
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
C.J.	CONTROL JOINT
CORR	CORRIDOR or CORRUGATED
CFL	COUNTERFLASHING
CTSK	COUNTERSUNK
CU	CUBIC
CFM	CUBIC FT/MIN
CY	CUBIC YARD
DAMP	DAMP-PROOFING
DP	DAMP-PROOFING
D	DEEP
DEG	DEGREE
DEMO	DEMOLISH or DEMOLITION
DEPT	DEPARTMENT
DTL	DETAIL
DIAG	DIAGONAL
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
D/W	DISHWASHER
DISP	DISPENSER or DISPOSAL
DIV	DIVISION
DR	DOOR
DBL	DOUBLE
DA	DOUBLE ACTING
DN	DOWN
DS	DOWNSPOUT
DWR	DRAWER
DWG	DRAWING
DF	DRINKING FOUNTAIN
DSP	DRY STAND PIPE
EA	EACH
ES	EACH SIDE
EW	EACH WAY
E	EAST
EOS	EDGE OF SLAB
EWc	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
ELEC	ELECTRICAL

ABBREVIATIONS	
EP	ELECTRICAL PANEL
EL	ELEVATION
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
EPT	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EVAC	EVACUATION
EXH	EXHAUST
ED	EXHAUST DUCT
EF	EXHAUST FAN or EACH FACE
EX	EXISTING
ETR	EXISTING TO REMAIN
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
EXP	EXPOSED or EXPANSION
EXT	EXTERIOR
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
F/F	FACE TO FACE
F	FARENHEIT
F.V.	FIELD VERIFY
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FIN	FINISHED
FF	FINISHED FLOOR
FFL	FINISHED FLOOR LINE
FO	FINISHED OPENING
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FAC	FIRE ALARM CABINET
FACP	FIRE ALARM CONTROL PANEL
FAS	FIRE ALARM STROBE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH + EC	FIRE HOSE + EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FHV	FIRE HOSE VALVE
FH	FIRE HYDRANT
FR	FIRE RESISTIVE or FIRE RATED
FRT	FIRE RETARDANT TREATED
FVC	FIRE VALVE CABINET
FP	FIREPROOF
FIXT	FIXTURE
FLM SPD	FLAME SPREAD
FLG	FLASHING
FHMS	FLAT HEAD MACHINE SCREW
FHWS	FLAT HEAD WOOD SCREW
FHWS	FLAT HEAD WOOD SCREW
FCD	FLOOR CLEAN OUT
FO	FLOOR DRAIN or FIRE DAMPER
FLR	FLOORING
FLWR	FLOW LINE
FLUOR	FLUORESCENT
FT	FOOT (FEET)
FTG	FOOTING
FDN	FOUNDATION
FURR	FURRED or FURRING
FUT	FUTURE
GALV	GALVANIZED
GI	GALVANIZED IRON
G	GAS
GA	GAUGE
GEN	GENERAL
GC	GENERAL CONTRACTOR
GL	GLASS or GLAZING
GB	GRAB BAR
GR	GRADE
GVL	GRAVEL
GND	GROUND
GFI	GROUND FAULT INTERRUPT
GRT	GROUT
GYP	GYPSUM
GYP. BD.	GYPSUM BOARD
GWb	GYPSUM WALLBOARD
HCP	HANDICAPPED
HDWR	HARDWARE
HDWD	HARDWOOD
HAS	HEADED ANCHOR STUD
HDR	HEADER
HTR	HEATER
HTG	HEATING
HVAC	HEATING, VENTILATION + AIR CONDITIONING
HVAC	HEATING, VENTILATION and AIR CONDITIONING
HD	HEAVY DUTY
HGT	HEIGHT
H	HIGH
HP	HIGH POINT
Hwy	HIGHWAY
HC	HOLLOW CORE or HANDICAPPED
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HB	HOSE BIB
HW	HOT WATER
HWH	HOT WATER HEATER
HR	HOUR
INCA ND	INCANDESCENT
IN	INCH(ES)
INCL	INCLUDED
INCL	INFORMATION
ID	INSIDE DIAMETER
INT	INTERIOR
INTMED	INTERMEDIATE
IBC	INTERNATIONAL BUILDING CODE or INSTALLED BY CONTRACTOR
INV	INVERT
JT	JOINT
JST	JOIST
KIT	KITCHEN
KD	KNOCKDOWN
KO	KNOCKOUT

ABBREVIATIONS	
LBL	LABEL
LDR	ELEVATION
LH	LEFT HAND
L	LENGTH
LSC	LIFE SAFETY CODE (NFPA 101)
LT	LIGHT
LGT	LIGHT
LP	LIGHTING PANEL or LOW POINT
LTWT	LIGHTWEIGHT
LF	LINEAR FEET
LIN	LINEN
LTL	LINTEL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LUM	LUMINOUS
LBS	POUND
MACH	MACHINERY
MAINT	MAINTENANCE
MH	MANHOLE
MFR	MANUFACTURER
MAS	MASONRY
MO	MASONRY OPENING
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL and PLUMBING
MED	MEDIUM
MEMB	MEMBRANE
MTL	METAL
ML	METAL LATH
MTH	METAL THRESHOLD
MM	MILLIMETERS
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
MB	MOISTURE BARRIER or MACHINE BOLT
MON	MONITOR
MLD	MOULDING
MTD	MOUNT[ED]
MUL	MULLION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NAT	NATURAL
NG	NATURAL GAS
[N]	NEW
NRC	NOISE REDUCTION COEFFICIENT
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
OBS	OBSCURE
Off	OFFICE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
OPH	OPPOSITE HAND
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OTO	OUTSIDE-TO-OUTSIDE
O/	OVER
OA	OVERALL
OD	OVERFLOW DRAIN
OH	OVERHEAD
O	OWNER
OFCl	OWNER FURNISHED CONTRACTOR INSTALLED
PKG	PACKAGE
PTM	PAINT TO MATCH
PTD	PAINT[ED]
PR	PAIR or PROPOSAL REQUEST
PNL	PANEL
PAR	PARALLEL
PKG	PARKING
PART	PARTITION
PVMT	PAVEMENT
PERF	PERFORATED
PERIM	PERIMETER
PD	PHYSICALLY DISABLED
PLSTR	PLASTER
PLAM	PLASTIC LAMINATE
PL	PLATE
PLBG	PLUMBING
PLYWD	PLYWOOD
PTS	PNEUMATIC TUBE SYSTEM
PT	POINT
POC	POINT OF CONNECTION
PT	POINT OF TANGENCY
POL	POISHED
PVC	POLYVINYL CHLORIDE
PT	POST TENSIONED or PORCELAIN TILE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PIP	POURED IN PLACE
PC	PRECAST
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRESTR	PRESTRESSED
PAC	PREVIOUSLY AWARDED CONTRACT
PRM	PRIMARY
PROJ	PROJECT[ION]
P/L	PROPERTY LINE
PBO	PROVIDED BY OTHERS
QTY	QUANTITY
RAD	RADIUS
RWC	RAIN WATER CONDUCTOR
RWL	RAIN WATER LEADER
RECEPT	RECEPTACLE
RECEPT	RECEPTION[IST]
REC	RECESS[ED]
RECT	RECTANGLE
RWD	REDWOOD
RE	REFER TO or REFERENCE
RFL	REFLECTED
REG	REGISTER
REINF	REINFORCED

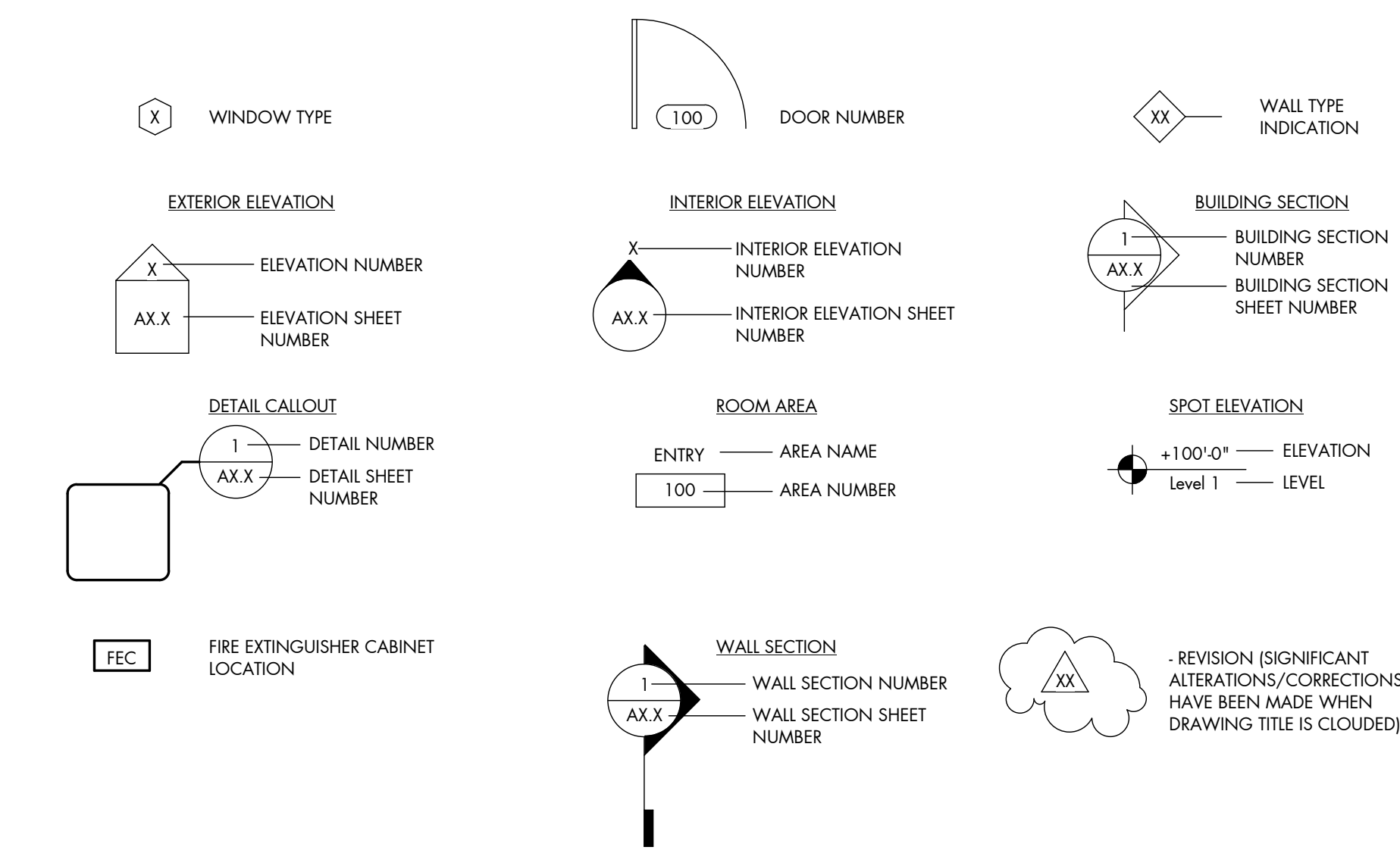
ABBREVIATIONS	
[R]	REMOVE
REQD	REQUIRED
RES	RESILIENT
RF	RESILIENT FLOORING
RET	RETAINING or RETURN
RAG	RETURN AIR GRILL
R.V.	REVEAL
RVS	REVERSE [SIDE]
REV	REVISE, REVISED or REVISION[S]
RPM	REVOLUTIONS PER MINUTE
RH	RIGHT HAND
ROW	RIGHT OF WAY
R	RISER
RD	ROOF DRAIN or ROAD
ROD	ROOF OVERFLOW DRAIN
RFG	ROOFING
RM	ROOM
RMS	ROOMS
RO	ROUGH OPENING
RHM	ROUND HEAD METAL SCREW
RHWS	ROUND HEAD WOOD SCREW
SCHED	SCHEDULE
SCR	SCREEN
SECR	SECRETARY
SECT	SECTION
SEC	SECURITY
SSK	SERVICE SINK
SHTG	SHEATHING
SHT	SHEET
SMS	SHEET METAL SCREW
SH	SHIELD
SIM	SIMILAR
SR	SINK RECEPTACLE or SHEET RUBBER
SL	SLATE
SOFF	SOFFIT
SC	SOLID CORE
S	SOUTH or SEALED
SPACE(S)	
SPECS	SPECIFICATION[S]
SPKL	SPRINKLER
SQ	SQUARE
SF	SQUARE FEET
SYD	SQUARE YARD
SS	STAINLESS STEEL
STD	STANDARD
SFM	STATE FIRE MARSHAL
STA	STATION
ST	STEAM
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURE or STRUCTURAL
SA	SUPPLY AIR
SPRT	SUPPORT
SUSP	SUSPEND[ED]
SYM	SYMMETRICAL
SYS	SYSTEM
TELE	TELEPHONE
TV	TELEVISION
TC	TEMPERED GLASS
TEMP	TEMPORARY or TEMPERATURE
THERM	THERMOSTAT
THK	THICK or THICKNESS
THLD	THRESHOLD
TOL	TOLERANCE
T&B	TOP AND BOTTOM
TO	TOP OF
TBC	TOP OF BACK OF CURB
TOC	TOP OF CONCRETE
TC	TOP OF CURVE
TD	TOP OF DECK
TOJ	TOP OF JOIST
TOP	TOP OF PLATE
TOS	TOP OF STEEL/SLAB
TOW	TOP OF WALL
TRANS	TRANSFORMER
T	TREAD
T	TREAD/TOP
TS	TUBE STEEL
TYP	TYPICAL
USGS	U.S. GEOLOGICAL SURVEY
U	UNDER
U/C	UNDER COUNTER
UC	UNDERCUT
UG	UNDERGROUND
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
USO	UNLESS SPECIFIED OTHERWISE
VB	VAPOR BARRIER
VAR	VARY or VARIES
VTR	VENT THROUGH ROOF
VENT	VENTILATION
VER	VERIFY
VIF	VERIFY IN FIELD
VERT	VERTICAL
V	VOLT
VOL	VOLUME
WTW	WALL TO WALL
WST REC	WASTE RECEPTACLE
W/R	WATER RESISTANT
WR	WATER RESISTANT
WP	WATERPROOF[ING]
WT	WEIGHT
WGT	WEIGHT
W	WEST or WIDE
WSP	WET STANDPIPE
W.O.	WHERE OCCURS
WF.	WIDE FLANGE or WOOD FLOORING
WI	WIDTH/WIDE
WDO	WINDOW
WIN	WINDOW
W/	WITH
W/I	WITHIN
W/O	WITHOUT
WD	WOOD
WB	WOOD BASE
WS	WOOD SCREW
WPT	WORKING POINT

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NOTE:

CONTRACTOR STAGING AREA TO BE SECURED BY CONTRACTOR AND STABILIZED WITH STONE DURING CONSTRUCTION. UPON COMPLETION OF PROJECT, CONTRACTOR SHALL SEED / STRAW AND RETURN AREA TO PRE-CONSTRUCTION CONDITIONS.

CONSTRUCTION STAGING AREA FOR PARKING AND LAY-DOWN

TTU TRAILERS

NO CONSTRUCTION PARKING PERMITTED IN EXISTING ASPHALT LOT

PROPOSED CONSTRUCTION ENTRANCE LOCATION

CONSTRUCTION STAGING PLAN
N.T.S.

ACCESSIBLE NOTES:

ALL CONSTRUCTION SHALL BE COMPLETED IN FULL COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD, FEDERAL REGISTER 36 CFR PARTS 1190 AND 1191, ACCESSIBILITY GUIDELINES, PROPOSED RULE, PUBLISHED IN THE FEDERAL REGISTER ON JULY 23, 2004. THESE GUIDELINES SHALL BE FOLLOWED UNLESS SUPERSEDED BY THE LOCAL JURISDICTION.

ALL ADA CONCRETE RAMPS SHALL HAVE A MINIMUM 5' X 5' LEVEL, (MAXIMUM 2% SLOPE IN ANY DIRECTION) LANDING AT TOP AND BOTTOM OF RAMP.

ALL SIDEWALKS ON SITE SHALL BE ACCESSIBLE COMPLIANT IN ACCORDANCE WITH CURRENT ACCESSIBLE CODE. ALL SIDEWALKS SHALL HAVE 1% OR LESS RUNNING SLOPE. RAMPS AND LANDINGS REQUIRED IF SLOPE IS OVER 5%. MAXIMUM CROSS SLOPE ALLOWED IS 2%.

FEMA DATA FOR PROJECT LOCATION:

FEMA FLOOD ZONE: X
FEMA MAP PANEL NUMBER: 47141C01200
FEMA MAP EFFECTIVE DATE: 05/16/2007
THE 100 YEAR BASE FLOOD ELEVATION (BFE) = XXX.XX
DATUM = NAVD 1988.

FEDERAL COMPLIANCE NOTE:

ALL DEVELOPMENT WITHIN THE BOUNDARIES OF THIS PLAN MEETS THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND THE FAIR HOUSING ACT. ADA: <http://www.ada.gov/> U.S. JUSTICE DEPT.: <http://www.ada.gov/ada/regs/ada/ada.htm>

TENNESSEE CONSTRUCTION GENERAL PERMIT
NOTICE OF COVERAGE CERTIFICATION:

THE PROJECT ASSOCIATED WITH THESE SUBMITTED PLANS IS COVERED UNDER TENNESSEE CONSTRUCTION GENERAL PERMIT TNR: 172872. THE TOTAL DISTURBED AREA: 10.51 ACRES.

CHECK ALL THAT APPLY: THIS SITE DISCHARGES INTO WATERS IDENTIFIED BY TDEC AS: EAST BLACKBURN FORK (TN05130100008 0200)
[] IMPAIRED FOR SILTATION [] IMPAIRED FOR HABITAT ALTERATION
[] EXCEPTIONAL

SIGNATURE: *Jael* DATE: 08-19-26
CIRCLE ONE: DEVELOPER [] PROJECT ENGINEER [] OTHER: []

EROSION PREVENTION & SEDIMENT CONTROL (EPSC) NOTES:

- ALL EROSION CONTROL PLANS SHALL BE KEPT CURRENT, AND WILL BE AVAILABLE TO ALL OPERATORS AND SITE PERSONNEL INVOLVED WITH EROSION PREVENTION AND SEDIMENT CONTROL. FOR PROJECTS REQUIRING COVERAGE UNDER THE TENNESSEE CONSTRUCTION GENERAL PERMIT, A COPY OF THE SWPPP, AND NOI WILL ALSO BE AVAILABLE TO THE SAME PERSONNEL, AND A COPY OF THE NOC WITH THE NOES TRACKING NUMBER WILL BE POSTED AT THE SITE ENTRANCE.
- WHERE CONSTRUCTION ACTIVITIES ON A PORTION OF THE SITE ARE TEMPORARILY CEASED FOR A PERIOD OF 14 DAYS OR LONGER, TEMPORARY STABILIZATION OF ALL DISTURBED AREAS, INCLUDING SLOPES AND STOCK PILES SHALL BE COMPLETED. SLOPES WITH A GRADE OF 3:1 OR STEEPER SHALL BE STABILIZED NO LATER THAN 7 DAYS AFTER COMPLETION, WITH EROSION CONTROL BLANKET, OR APPROVED EQUAL.
- ALL EPSC MEASURES SHALL BE INSTALLED PRIOR TO COMMENCING WITH EARTH DISTURBING ACTIVITIES. THESE MEASURES SHALL BE SUBJECT TO A SITE ASSESSMENT WITHIN ONE MONTH OF COMMENCEMENT. THIS ASSESSMENT WILL BE COMPLETED PER THE CRITERIA SET FORTH IN SECTION 3.1.2 OF THE TENNESSEE CONSTRUCTION GENERAL PERMIT.
- DISCHARGES FROM DEWATERING ACTIVITIES, INCLUDING DISCHARGES FROM DEWATERING OF TRENCH EXCAVATIONS, ARE PROHIBITED UNLESS MANAGED BY APPROPRIATE CONTROLS. APPROPRIATE CONTROLS INCLUDE, BUT ARE NOT LIMITED TO: WEIR TANK, DEWATERING TANK, GRAVITY BAG FILTER, SAND MEDIA, PARTICULATE FILTER, PRESSURIZED BAG FILTER, CARTRIDGE FILTER, OR OTHER APPROVED CONTROL UNITS PROVIDING THE LEVEL OF TREATMENT NECESSARY.
- ALL NEW AND EXISTING DRAINAGE STRUCTURES SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
- SILT BARRIERS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 50% FILLED WITH SUCH SEDIMENT.
- ALL DIMENSIONS AND LOCATIONS OF TEMPORARY EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNATED BY THE EPSC PROFESSIONAL.
- WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE IN THE OPINION OF THE EPSC PROFESSIONAL, THEY SHALL BE REMOVED.
- REPLACE SILT BARRIERS AS DIRECTED BY THE EPSC PROFESSIONAL.
- PROHIBITED DISCHARGES FROM THIS SITE INCLUDE: CONCRETE WASHOUT WATER, WATER USED FOR CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS, EQUIPMENT FUELS AND OILS, SOAPS AND SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT THE APPROPRIATE BMP NECESSARY TO PREVENT THESE MATERIALS FOR CONTAMINATING ANY SITE DISCHARGE WATER. THE LOCATIONS OF THESE BMPs SHALL BE COORDINATED WITH THE CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT DURING THE PRE-CONSTRUCTION MEETING.
- CONTRACTOR TO PROVIDE AN AREA FOR CONCRETE WASHDOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH METRO CP-10 AND CP-13, RESPECTIVELY. CONTRACTOR TO COORDINATE EXACT LOCATION WITH CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT DURING PRE-CONSTRUCTION MEETING.
- CONTROL OF OTHER SITE WASTES SUCH AS DISCARDED BUILDING MATERIALS, CHEMICALS, LITTER, AND SANITARY WASTES THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY IS ALSO REQUIRED BY THE GRADING PERMITTEE. LOCATION OF AND/OR NOTES REFERRING TO THESE BMPs SHALL BE SHOWN ON THE EPSC PLAN.
- CONTRACTOR SHALL PROVIDE ALL INSPECTIONS AND REPORTING REQUIRED FOR THE STATE ISSUED NOC.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING DUST CONTROL DURING CONSTRUCTION. COST TO PROVIDE DUST CONTROL TO BE INCLUDED IN BID.
- CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT/ MUD/ DEBRIS FROM PUBLIC AND PRIVATE DRIVES. THIS MAY INCLUDE A STREET SWEEPER/ WASHER. COST OF REMOVAL TO BE INCLUDED IN BID.
- CONTRACTOR SHALL FILE A NOTICE OF TERMINATION (NOT) WITH T.D.E.C. UPON FINAL STABILIZATION OF SITE.
- CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING AROUND CONSTRUCTION SITE TO PROTECT THE SURROUNDING UNDISTURBED CAMPUS AREAS.

UTILITY NOTES:

- WHERE UTILITY LINES PASS OVER OR WITHIN 2.5 FEET OF WATER MAINS, THE SEWER SHALL BE ENCASED IN CONCRETE.
- ALL PAVED AREAS SHALL BE CONSTRUCTED TO SUBGRADE AND ALL PROPOSED FILLS SHALL BE MADE AND COMPACTED PRIOR TO CONSTRUCTION OF SANITARY SEWER.
- CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL BENDS, JOINTS AND FITTINGS TO CONSTRUCT UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR ANY FEES ASSOCIATED WITH CONSTRUCTION SHOWN ON DRAWINGS.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES, INCLUDING SEWERS, PRIOR TO CONSTRUCTION.
- ALL CONNECTIONS TO EXISTING MANHOLE(S) SHALL BE CORING AND RESILIENT CONNECTOR METHOD.
- A MINIMUM OF 4' GROUND COVER SHALL BE MAINTAINED OVER ALL PROPOSED SANITARY SEWER LINES AND WATER LINES.
- SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF SEWER CONNECTIONS, WATER CONNECTIONS AND GAS CONNECTIONS. UTILITY CONTRACTOR TO INSTALL PROPOSED UTILITIES TO WITHIN 5 FT. OF BUILDING LINE.
- ALL SEWER INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS OF CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR IS RESPONSIBLE FOR REIMBURSING CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT THE COST OF INSPECTION.
- AFTER COMPLETION OF THE SANITARY SEWER(S), CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT WILL DIRECT THE TIE-UP OF THE LINES PRIOR TO FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED DOMESTIC AND FIRE WATER SERVICE UNTIL THE NEW SYSTEM HAS BEEN COMPLETED, TESTED AND APPROVED.
- INSPECTION CLEANOUTS TO BE INSTALLED ACCORDING TO CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT SPECIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SEWER CUT SHEETS AS REQUIRED BY CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR IS TO PROVIDE AND MAINTAIN THE CONSTRUCTION IDENTIFICATION SIGN FOR PRIVATE DEVELOPMENT APPROVED.
- MAIN LINE SEWER TAPS WILL BE MADE BY CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT.
- COORDINATE MAINLINE WATER TAPS WITH CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION.
- ALL WATER AND SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT DESIGN SPECIFICATIONS. CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT REQUIREMENTS TO SUPERSEDE ANY SPECIFICATIONS PROVIDED. CONTRACTOR SHALL BE KNOWLEDGEABLE OF CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT REQUIREMENTS PRIOR TO BIDDING.
- CONTRACTOR TO PROVIDE CONCRETE ANCHORS ON WATER AND SEWER MAINS IN ACCORDANCE WITH CITY OF COOKEVILLE PUBLIC WORKS DEPARTMENT.

GENERAL CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL CHECK ALL FINISHED GRADES AND DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR CONTRACTOR CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY(S).
- THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND OBTAIN ALL PERMITS PRIOR TO BEGINNING WORK.
- PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. OBTAIN APPROVAL FROM ENGINEER PRIOR TO ANY DEVIATIONS FROM INTENDED GRADES ON PLANS. INSTALL ALL UTILITIES PRIOR TO INSTALLATION OF PAVEMENT.
- CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH, UNLESS OTHERWISE NOTED. ALL CONCRETE SHALL BE CLASS "A" (4,000 P.S.I.), UNLESS OTHERWISE NOTED.
- ALL DAMAGE TO EXISTING ASPHALT PAVEMENT, CURB AND GUTTER, AND CONCRETE SIDEWALKS TO REMAIN WHICH RESULTS FROM NEW CONSTRUCTION, SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
- DIMENSIONS ARE TO THE FACE OF CURBS, EDGE OF CONCRETE, OR TO FACE OF BUILDING, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD ELECTRICAL WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK, THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF THE ABOVE NOTED WIRES, THE ELECTRICAL COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS.
- IN EASEMENTS AND RIGHTS-OF-WAY, CONTRACTOR SHALL PROTECT AND RESTORE SAID PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION EXCEPT AS NOTED.
- THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC. AND THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
- CONTRACTOR SHALL SAW CUT ANY SIDEWALKS, CURBS, GUTTERS, DRIVEWAYS, OR PAVED STREETS FOR UTILITY CROSSINGS, AND REPLACE WITH SAME SECTION AND MATERIALS AS EXISTING.
- NO TREES OR VEGETATION SHALL BE DISTURBED WITHOUT OWNER'S APPROVAL.
- CONTRACTOR SHALL HIGH-PRESSURE WASH PARKING LOT, CONCRETE PAVEMENT, AND SIDEWALKS UPON COMPLETION OF CONSTRUCTION AS NEEDED.
- CONTRACTOR SHALL NOTE THAT ALL WORK TO BE DONE SUCH AS EXCAVATIONS, TRENCHES, CAISSONS, WALKS, ETC. AS INDICATED ON DRAWINGS, IS SHOWN WITHOUT KNOWLEDGE OF UNDERGROUND UTILITIES ON THIS PARTICULAR SITE. THE ARCHITECT / ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR DETERMINING THEIR LOCATION, SIZE, DEPTH, OR HAZARD.
- NO CONSTRUCTION OR STORAGE OF SUPPLIES AND EQUIPMENT SHALL BE PERMITTED OUTSIDE SILT FENCE.
- ALL CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) IN EFFECT AT THE TIME IN WHICH THE CONSTRUCTION ACTIVITIES ARE PERFORMED.
- ALL PAVEMENT MARKINGS AND SIGNAGE SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

GENERAL DEMOLITION NOTES:

- DEGRADABLE DEMOLITION DEBRIS INCLUDING, BUT NOT LIMITED TO, WOOD, METAL, PLASTER, TILE, ETC., SHALL NOT BE USED AS FILL ON SITE. THESE MATERIALS MUST BE WASTED OFF-SITE. CONTRACTOR TO VERIFY WITH GEOTECHNICAL ENGINEER ALL UNACCEPTABLE DEMOLITION FILL MATERIALS.
- THE CONTRACTOR SHALL PROVIDE PROTECTIVE COVERING IN EXISTING AREAS NOT DESIGNATED FOR DEMOLITION OR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED BY HIS OR ANY SUBCONTRACTOR'S WORK.
- THE CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE WELL IN ADVANCE OF CONSTRUCTION COMMENCEMENT TO SCHEDULE, SEQUENCE, AND COORDINATE ALL WORK.
- IN THE EVENT THE CONTRACTOR ENCOUNTERS MATERIAL ON THE SITE REASONABLY BELIEVED TO BE ASBESTOS, POLYCHLORINATED BIPHENYL, OR OTHER TOXIC MATERIAL WHICH HAS NOT BEEN RENDERED HARMLESS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AREA AFFECTED AND REPORT THE CONDITION IN WRITING TO THE OWNER.
- THE CONTRACTOR SHALL VERIFY DIMENSIONS OF AS-BUILT CONDITIONS, AND NOTIFY THE ENGINEER/ARCHITECT IN WRITING OF ANY DISCREPANCIES. ALL INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS IS BASED ON FIELD OBSERVATIONS AND/OR THE ORIGINAL CONSTRUCTION DOCUMENTS OF THE FACILITY.
- THE CONTRACTOR SHALL REMOVE ALL ABANDONED SYSTEMS AND CAP OR REMOVE EXISTING BRANCH LINES AS INDICATED IN THE DRAWINGS. IF AN EXISTING SYSTEM IS TO REMAIN, RELOCATE AND/OR REROUTE AS REQUIRED. NEW LOCATION TO BE APPROVED BY ENGINEER/ARCHITECT PRIOR TO WORK BEING PERFORMED.
- THE CONTRACTOR SHALL SURVEY AND DETERMINE THE REMOVAL OF EXISTING CONSTRUCTION, EITHER WHOLE OR IN PART, AS REQUIRED FOR THE PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT IN WRITING OF ANY CONSTRUCTION DEFECTS FOUND IN DEMOLITION WORK OF EXISTING BUILDINGS, UTILITIES, ETC.
- ALL BUILDINGS OUTSIDE OF THE DEMOLITION AREA SHALL BE PROTECTED.

GRADING AND DRAINAGE NOTES:

- NO TREES ARE TO BE REMOVED AND/OR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES AND ONLY AS APPROVED BY OWNER'S REPRESENTATIVE.
- REGARDLESS OF DEPTH, TOPSOIL IS TO BE STRIPPED FROM ALL DISTURBED AREAS, STOCKPILED ON-SITE, AND PROPERLY STABILIZED AND PROTECTED. TOPSOIL SHALL BE STABILIZED WITH SEEDING AND MULCH.
- ALL GRADED AREAS, INCLUDING SLOPES, ARE TO BE MULCHED AND SEEDDED WITHIN 14 DAYS AFTER GRADING IS COMPLETED.
- CONSTRUCT EROSION CONTROL AS SHOWN ON DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
- ALL NEW AND EXISTING STRUCTURES SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL PROVIDE THE NECESSARY PROTECTION, IN ACCORDANCE WITH THE SPECIFICATIONS, FOR TREES TO REMAIN. DO NOT OPERATE OR STORE HEAVY EQUIPMENT, NOR HANDLE OR STORE MATERIALS, WITHIN THE DRIP LINES OF TREES TO REMAIN.
- CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS PRIOR TO BEGINNING WORK.
- IN THE EVENT OF DISCREPANCIES THE RECOMMENDATIONS OF THE ENGINEER SHALL GOVERN.
- ALL GRADING OPERATIONS, EXCAVATION, FILL, COMPACTION TESTING AND BACKFILL SHALL BE OBSERVED AND TESTED BY A QUALIFIED TESTING AGENCY.
- NO FILL SHALL BE PLACED PRIOR TO APPROVAL OF THE SUBGRADE BY THE TESTING AGENCY.
- COMPACTION SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF A TESTING AGENCY.
- COMPACTION TESTS SHALL BE DONE FOR EACH TWO FEET OF FILL, BUT NOT LESS THAN ONE TEST FOR EVERY 500 CUBIC YARDS, OR MORE FREQUENTLY IF REQUIRED BY A TESTING AGENCY. RESULTS OF THE TESTS SHALL BE SUPPLIED TO SITE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED FOR INSPECTION AND TESTING OF SOILS DUE TO FAILURE TO COMPLY WITH THE MINIMUM REQUIREMENTS OF THE TESTING AGENCY.
- ALL GRADING OPERATIONS SHALL BE STAKED BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR APPROVED BY THE OWNER.
- UPON COMPLETION OF GRADING, THE TESTING AGENCY SHALL PROVIDE OWNER WITH A LETTER INDICATING THAT THE SITE AND BUILDING PAD WERE PREPARED IN DIRECT CONFORMANCE WITH HIS RECOMMENDATIONS.
- ALL SLOPES 3:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET OR APPROVED EQUAL WITHIN SEVEN (7) DAY AFTER GRADING IS COMPLETE.
- CONTRACTOR TO PROVIDE ENGINEER WITH A COMPLETE AS-BUILT SURVEY OF THE SITE BY A LICENSED LAND SURVEYOR. THE AS-BUILT SURVEY SHOULD INCLUDE (AT A MINIMUM) THE FOLLOWING:
 - 17.1. CONTOURS ON 1' INTERVALS
 - 17.2. UTILITIES
 - 17.3. HARDSCAPES
 - 17.4. TRACK AND FIELD LAYOUTS
- CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL LOCAL GRADING AND INSPECTION CODES.
- CONTRACTOR SHALL PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING. CONTRACTOR TO COORDINATE EXACT LOCATION DURING PRE-CONSTRUCTION MEETING. CONTROL OF OTHER SITE WASTES SUCH AS DISCARDED BUILDING MATERIALS, CHEMICAL, LITTER AND SANITARY WASTE THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY IS ALSO REQUIRED BY THE GRADING PERMIT.

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TTU TRACK AND FIELD
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SBC#364/011-05-2025

25007



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DESCRIPTION DATE
ADDENDUM 1 08/19/26

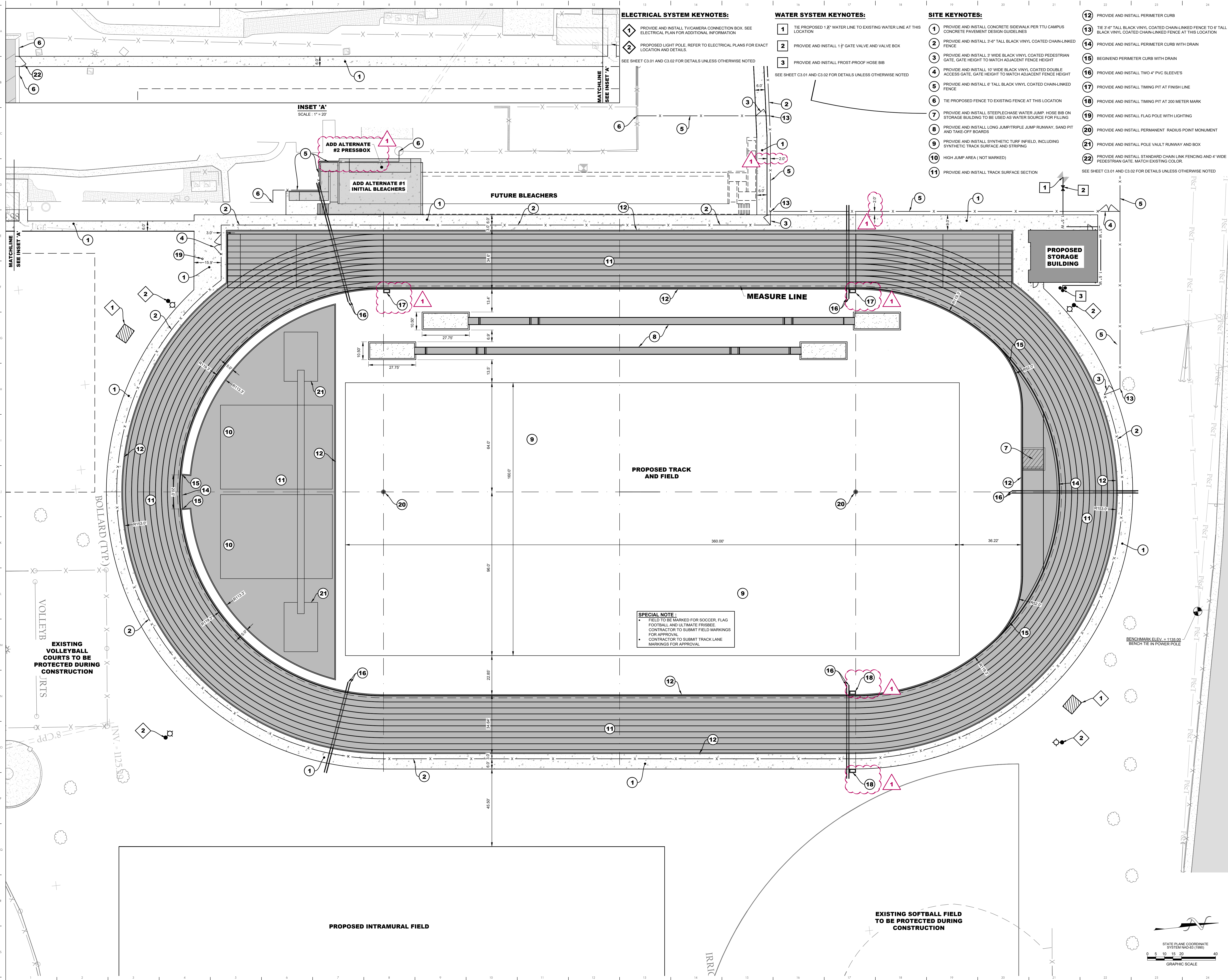
CIVIL NOTES

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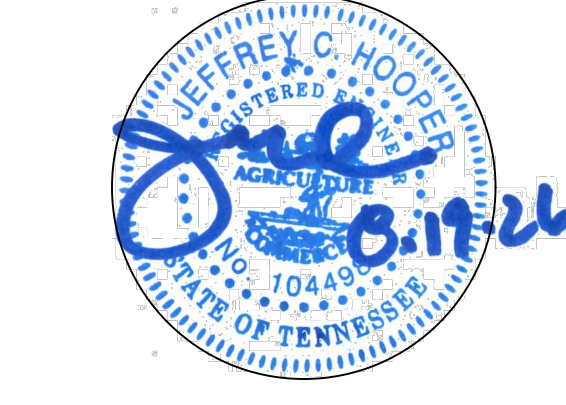
100% Construction Documents

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DESCRIPTION DATE
ADDENDUM 1 08/19/26

ENLARGED SITE &
UTILITY PLAN

C1.02

24 JULY 2026

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ALL CONSTRUCTION ACTIVITIES SHALL BE COMPLETED IN FULL COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT ("ADA") AND ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD, FEDERAL REGISTER 38 CFR PARTS 1190 AND 1191. ACCESSIBILITY GUIDELINES; PROPOSED RULE, PUBLISHED IN THE FEDERAL REGISTER ON JULY 23, 2004, AS HAS BEEN ADOPTED BY LOCAL JURISDICTION.

ALL ACCESSIBLE CONCRETE RAMPS SHALL HAVE A MINIMUM 5' X 5' LEVEL (MAXIMUM 2% SLOPE IN ANY DIRECTION) LANDING AT TOP AND BOTTOM OF RAMP.

ALL SIDEWALKS ON SITE SHALL BE ACCESSIBLE COMPLIANT IN ACCORDANCE WITH CURRENT ACCESSIBLE CODE. ALL SIDEWALKS SHALL HAVE 5% OR LESS RUNNING SLOPE. RAMPS AND LANDINGS REQUIRED IF SLOPE IS OVER 5%. MAXIMUM CROSS SLOPE ALLOWED IS 2%.

ALL SIDEWALKS ON SITE SHALL BE ACCESSIBLE COMPLIANT IN ACCORDANCE WITH CURRENT ACCESSIBLE CODE. ALL SIDEWALKS SHALL HAVE 5% OR LESS RUNNING SLOPE. RAMPS AND LANDINGS REQUIRED IF SLOPE IS OVER 5%. MAXIMUM CROSS SLOPE ALLOWED IS 2%.

- 1 PROVIDE AND INSTALL PRECAST CHANNEL SLOD DRAIN (0% SLOPE).
- 2 PROVIDE AND INSTALL 12" PERFORATED DOUBLE WALL HDPE COLLECTOR EDGE DRAIN PIPE (0% SLOPE).
- 3 CONNECT PROPOSED STORM STRUCTURE INTO EXISTING PIPE AT THIS LOCATION. CONTRACTOR TO FIELD VERIFY EXISTING INVERT ELEVATION PRIOR TO THE START OF CONSTRUCTION.
- 4 PROVIDE AND INSTALL 4" PERFORATED DOUBLE WALL HDPE UNDERDRAINS AT 0.5 % MINIMUM SLOPE (TYP.).
- 5 PROVIDE AND INSTALL SYNTHETIC TURF UNDERDRAIN CLEANOUT.
- 6 PROVIDE AND INSTALL 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN AT 0.5 % MINIMUM SLOPE.

- 8** PROVIDE AND INSTALL IN-LINE CATCH BASIN WITH REMOVABLE COVER AND PLASTIC TRAP COVER. CONNECT TO PROPOSED FLAT 12" PERFORATED DOUBLE WALL COLLECTOR DRAIN PIPE.
- 9** PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HDPE STORM SEWER.
- 10** PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE LONG/TRIPLE JUMP SAND PIT UNDERDRAIN.
- 11** PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HDPE TAKE-OFF BOARD DRAIN PIPE.
- 12** CONNECT 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN PIPE TO SLOPED 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN AT THIS LOCATION.

- COLLECTOR DRAIN AT 0.5% MINIMUM SLOPE.
- 8 PROVIDE AND INSTALL IN-LINE CATCH BASIN WITH REMOVABLE COVER AND PLASTIC TRASH BUCKET. CONNECT TO PROPOSED FLAT 12" PERFORATED DOUBLE WALL COLLECTOR DRAIN PIPE.
- 9 PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HDPE STORM SEWER.
- 10 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE LONG/TRIPLE LUMP SAND PIT UNDERDRAIN.
- 11 PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HDPE TAKE-OFF BOARD DRAIN PIPE.
- 12 CONNECT 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN PIPE TO SLOPED 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN AT THIS LOCATION.

WATERMAIN IS TO BE DELETED FROM THIS DRAWING.

14 PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HDPE FOR TIMING SYSTEM JUNCTION BOX.

15 PROVIDE AND INSTALL DOWNPOUT BOOT, BOOT TO TRANSFER FROM RECTANGULAR TO CIRCULAR USING SAME MATERIAL AS DOWNPOUTS. CONNECT TO UNDERDRAIN SYSTEM. CONTRACTOR TO PROVIDE SUBMITTAL DETAIL FOR APPROVAL. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

16 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN.

S# STORM SEWER STRUCTURE ID. SEE SHEET C2.01 FOR STRUCTURE AND PIPE TABLES.

SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED.

CONNECTION TO STEEPLECHASE WATER JUMP DRAIN.

14 PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HDPE 1' FOR TIMING SYSTEM CIRCULAR BOX.

15 PROVIDE AND INSTALL DOWNSPOUT BOOT: BOOT TO TRANSFER FROM RECTANGULAR TO CIRCULAR USING SAME MATERIAL. DOWNSPOUTS CONNECT TO UNDERDRAIN SYSTEM. CONTRACTOR TO PROVIDE SUBMITTAL DETAIL FOR APPROVAL/SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

16 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN.

S# STORM SEWER STRUCTURE ID, SEE SHEET C2.01 FOR STRUCTURE AND PIPE TABLES.

SEE SHEET C3.01 AND C3.02 FOR DETAIL S IN IFSS OTHERWISE NOTE

SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTE

**CONTRACTOR SHALL COORDINATE
CONSTRUCTION OF PROPOSED
STORM SYSTEM WITH TTU**

EXISTING INTRAMURAL FIELD

**EXISTING
VOLLEYBALL
COURTS TO BE
PROTECTED DURING
CONSTRUCTION**

BENCHMARK ELEV. = 1127.86
NORTHWEST ANCHOR BOLT

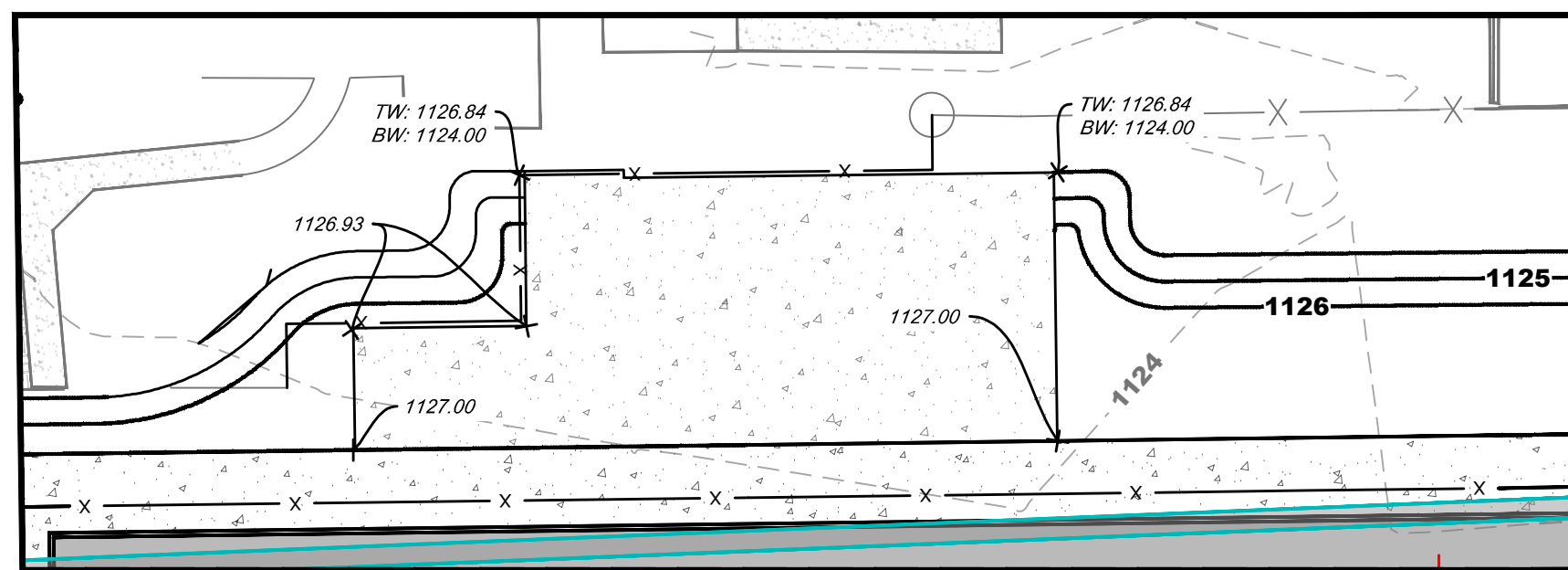
T.C. ELEV. = 1125.80
INV. (IN) EL. = 1116.46
INV. (O) EL. = 1116.36

T.C. Elev. = 1127.38
INV.(IN)EL. = 1125.34
INV.(ϕ) EL. = 1123.09

STATE PLANE COORDINATE
SYSTEM NAD-83 (1990)

5 10 15 20

GRAPHIC SCALE



INSET 'A'

SEE INSET 'A' FOR ADD ALTERNATE #1 - INITIAL BLEACHERS GRADING PLAN

ACCESSIBLE NOTES:

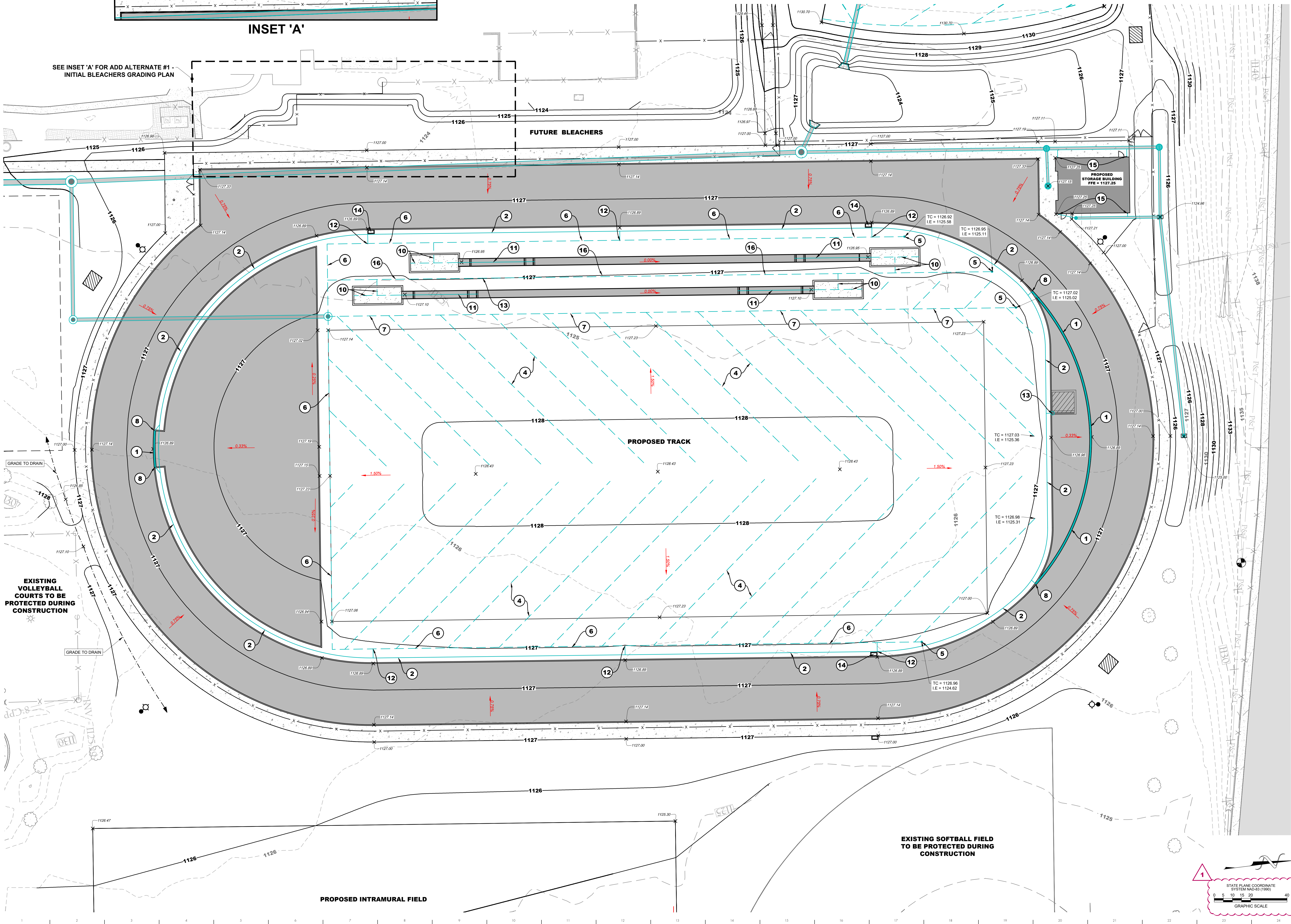
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GRADING AND DRAINAGE KEYNOTES:

- 1 PROVIDE AND INSTALL PRECAST CHANNEL SLOT DRAIN (0% SLOPE).
 - 2 PROVIDE AND INSTALL 12" PERFORATED DOUBLE WALL HDPE COLLECTOR EDGE DRAIN PIPE (0% SLOPE).
 - 3 CONNECT PROPOSED STORM STRUCTURE INTO EXISTING PIPE AT THIS LOCATION. CONTRACTOR TO FIELD VERIFY EXISTING INVERT ELEVATION PRIOR TO THE START OF CONSTRUCTION.
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 - 8 PROVIDE AND INSTALL INLINE CATCH BASIN WITH REMOVABLE COVER AND PLASTIC TRASH BUCKET. CONNECT TO PROPOSED FLAT 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN PIPE.
 - 9 PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HDPE STORM SEWER.
 - 10 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE LONG/TRIPLE JUMP SAND PIT UNDERDRAIN.
 - 11 PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HDPE TAKE-OFF BOARD DRAIN PIPE.
 - 12 CONNECT 12" PERFORATED DOUBLE WALL HDPE COLLECTOR EDGE DRAIN PIPE TO SLOPED 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN AT THIS LOCATION.
 - 13 PROVIDE AND INSTALL 6" SOLID DOUBLE WALL HDPE FOR CONNECTION TO STEEPLECHASE WATER JUMP DRAIN.
 - 14 PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HDPE DRAIN FOR TIMING SYSTEM JUNCTION BOX.
 - 15 PROVIDE AND INSTALL DOWNSPOUT BOOT. BOOT TO TRANSITION FROM RECTANGULAR TO CIRCULAR USING SAME MATERIAL AS DOWNSPOUTS. CONNECT TO UNDERDRAIN SYSTEM. CONTRACTOR TO PROVIDE SUBMITTAL DETAIL FOR APPROVAL. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - 16 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN.
 - SM STORM SEWER STRUCTURE ID. SEE SHEET C2.01 FOR STRUCTURE AND PIPE TABLES.
- SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED.



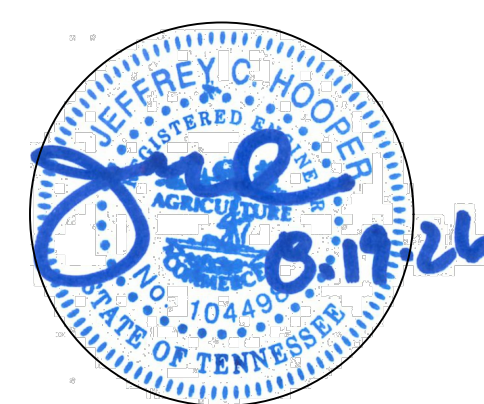
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TTU TRACK AND FIELD FACILITY
SBC#364/011-05-2025

25007



333 UNIVERSITY DRIVE
COOKEVILLE, TN
38501

DESCRIPTION DATE
ADDENDUM 1 08/19/26

ENLARGED GRADING & DRAINAGE PLAN

C2.03

24 JULY 2026

100% Construction Documents

www.bauersaskewarchitecture.com

ACCESSIBLE NOTES:

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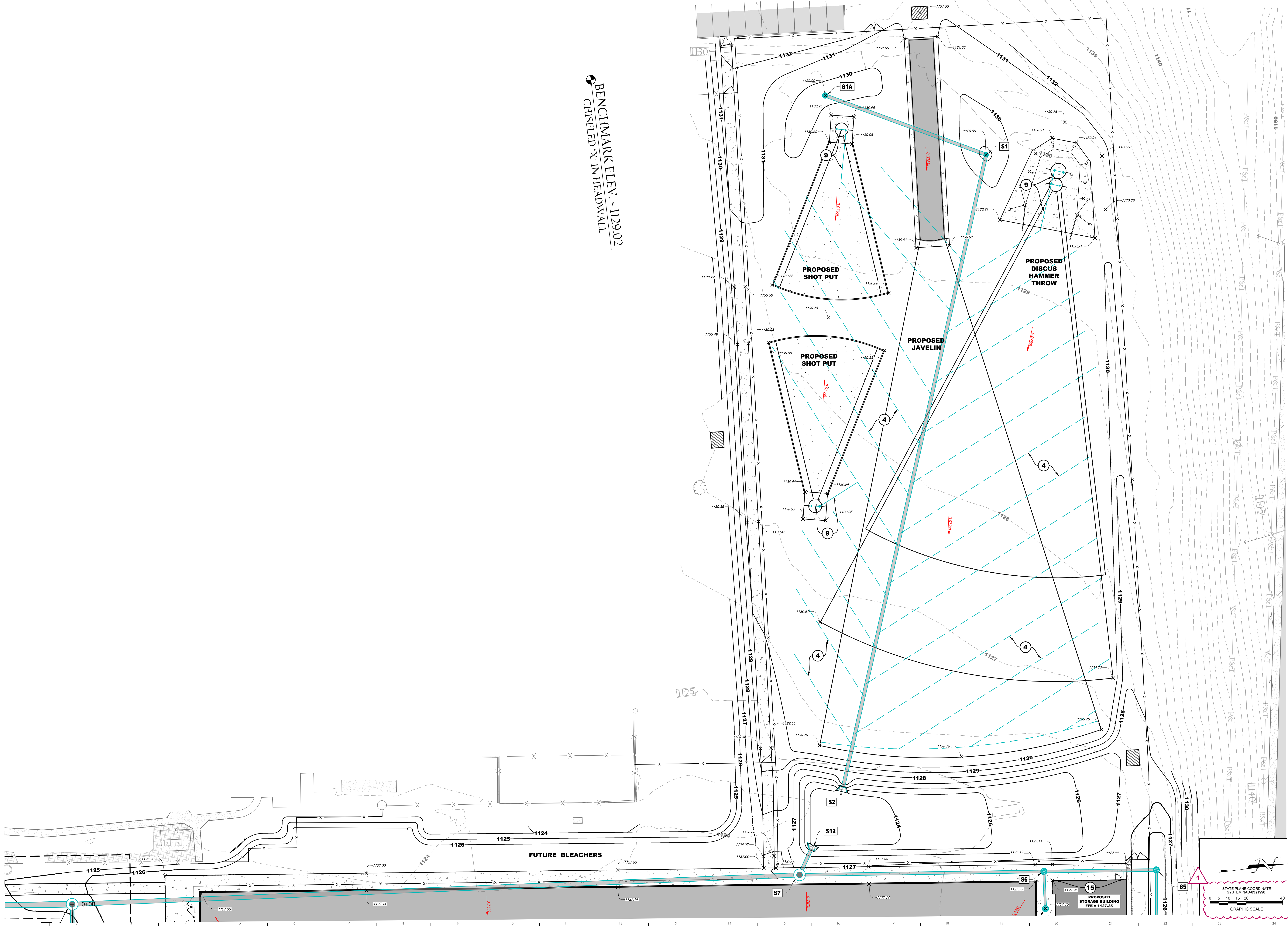
GRADING AND DRAINAGE KEYNOTES:

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- 2 PROVIDE AND INSTALL 12" PERFORATED DOUBLE WALL HOPE COLLECTOR EDGE DRAIN PIPE (0% SLOPE).
- 3 CONNECT PROPOSED STORM STRUCTURE INTO EXISTING PIPE AT THIS LOCATION. CONTRACTOR TO FIELD VERIFY EXISTING INVERT ELEVATION PRIOR TO THE START OF CONSTRUCTION.
- 4 PROVIDE AND INSTALL 4" PERFORATED DOUBLE WALL HOPE UNDERDRAINS AT 0.5 % MINIMUM SLOPE (TYP.)
- 5 PROVIDE AND INSTALL SYNTHETIC TURF UNDERDRAIN CLEANOUT.
- 6 PROVIDE AND INSTALL 12" PERFORATED DOUBLE WALL HOPE COLLECTOR DRAIN AT 0.5 % MINIMUM SLOPE.

- 7 PROVIDE AND INSTALL 8" PERFORATED DOUBLE WALL HOPE COLLECTOR DRAIN AT 0.5% MINIMUM SLOPE.
- 8 PROVIDE AND INSTALL IN-LINE CATCH BASIN WITH REMOVABLE COVER AND PLASTIC TRASH BUCKET. CONNECT TO PROPOSED FLAT 12" PERFORATED DOUBLE WALL COLLECTOR EDGE DRAIN PIPE.
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- 11 PROVIDE AND INSTALL 2" SOLID DOUBLE WALL HOPE TAKE-OFF BOARD DRAIN PIPE.
- 12 CONNECT 12" PERFORATED DOUBLE WALL HOPE COLLECTOR EDGE DRAIN PIPE TO SLOPED 12" PERFORATED DOUBLE WALL HOPE COLLECTOR DRAIN AT THIS LOCATION.

- 13 PROVIDE AND INSTALL 6" SOLID DOUBLE WALL HOPE FOR CONNECTION TO STEEPLECHASE WATER JUMP DRAIN.
 - 14 PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HOPE DRAIN FOR TIMING SYSTEM JUNCTION BOX.
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 - 17 STORM SEWER STRUCTURE ID. SEE SHEET C2.01 FOR STRUCTURE AND PIPE TABLES.
- SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED.

BENCHMARK ELEV. = 1129.02
CHISELED 'X' IN HEADWALL



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FACILITY
SBC#364/011-05-2025

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COOKEVILLE, TN
38501

DESCRIPTION DATE
ADDENDUM 1 08/19/26

ENLARGED GRADING &
DRAINAGE PLAN

C2.04

24 JULY 2026

100% Construction Documents

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ACCESSIBLE NOTES:

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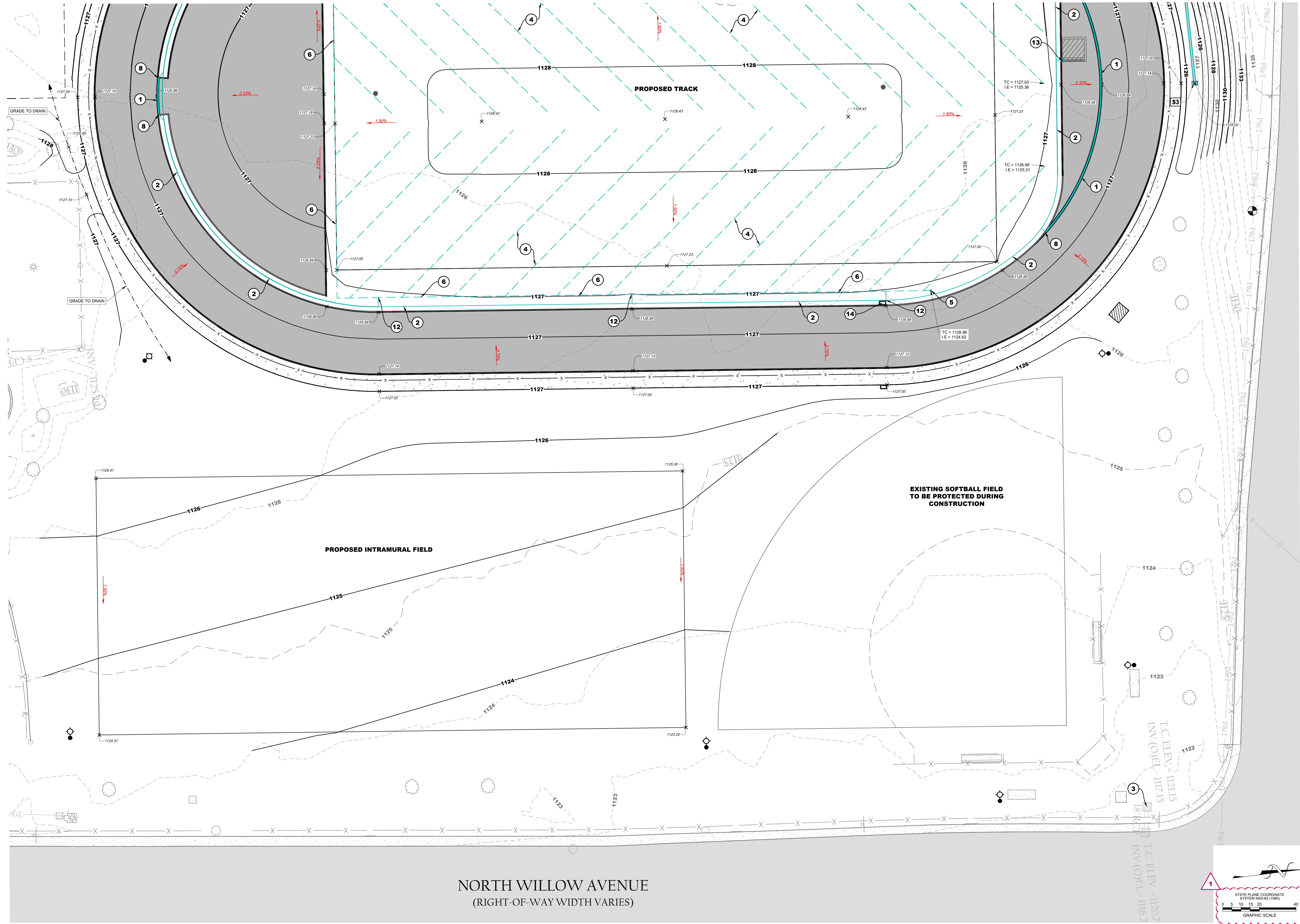
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- 5 PROVIDE AND INSTALL SYNTHETIC TURF UNDERDRAIN CLEANOUT.
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- 8 PROVIDE AND INSTALL IN-LINE CATCH BASIN WITH REMOVABLE COVER AND PLASTIC TRASH BUCKET. CONNECT TO PROPOSED FLAT 12" PERFORATED DOUBLE WALL COLLECTOR EDGE DRAIN PIPE.
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- 12 CONNECT 12" PERFORATED DOUBLE WALL HDPE COLLECTOR EDGE DRAIN PIPE TO SLOPED 12" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN AT THIS LOCATION.

- 13 PROVIDE AND INSTALL 6" SOLID DOUBLE WALL HDPE FOR CONNECTION TO STEEP/CHASE WATER JUMP DRAIN.
- 14 PROVIDE AND INSTALL 2" PERFORATED DOUBLE WALL HDPE DRAIN FOR TIMING SYSTEM JUNCTION BOX.
- 15 PROVIDE AND INSTALL DOWNSPOUT BOOT. BOOT TO TRANSITION FROM RECTANGULAR TO CIRCULAR USING SAME MATERIAL AS DOWNSPOUTS. CONNECT TO UNDERDRAIN SYSTEM. CONTRACTOR TO PROVIDE SUBMITTAL DETAIL FOR APPROVAL. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 16 PROVIDE AND INSTALL 6" PERFORATED DOUBLE WALL HDPE COLLECTOR DRAIN.
- 5# STORM SEWER STRUCTURE ID. SEE SHEET C2.01 FOR STRUCTURE AND PIPE TABLES.

SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED.



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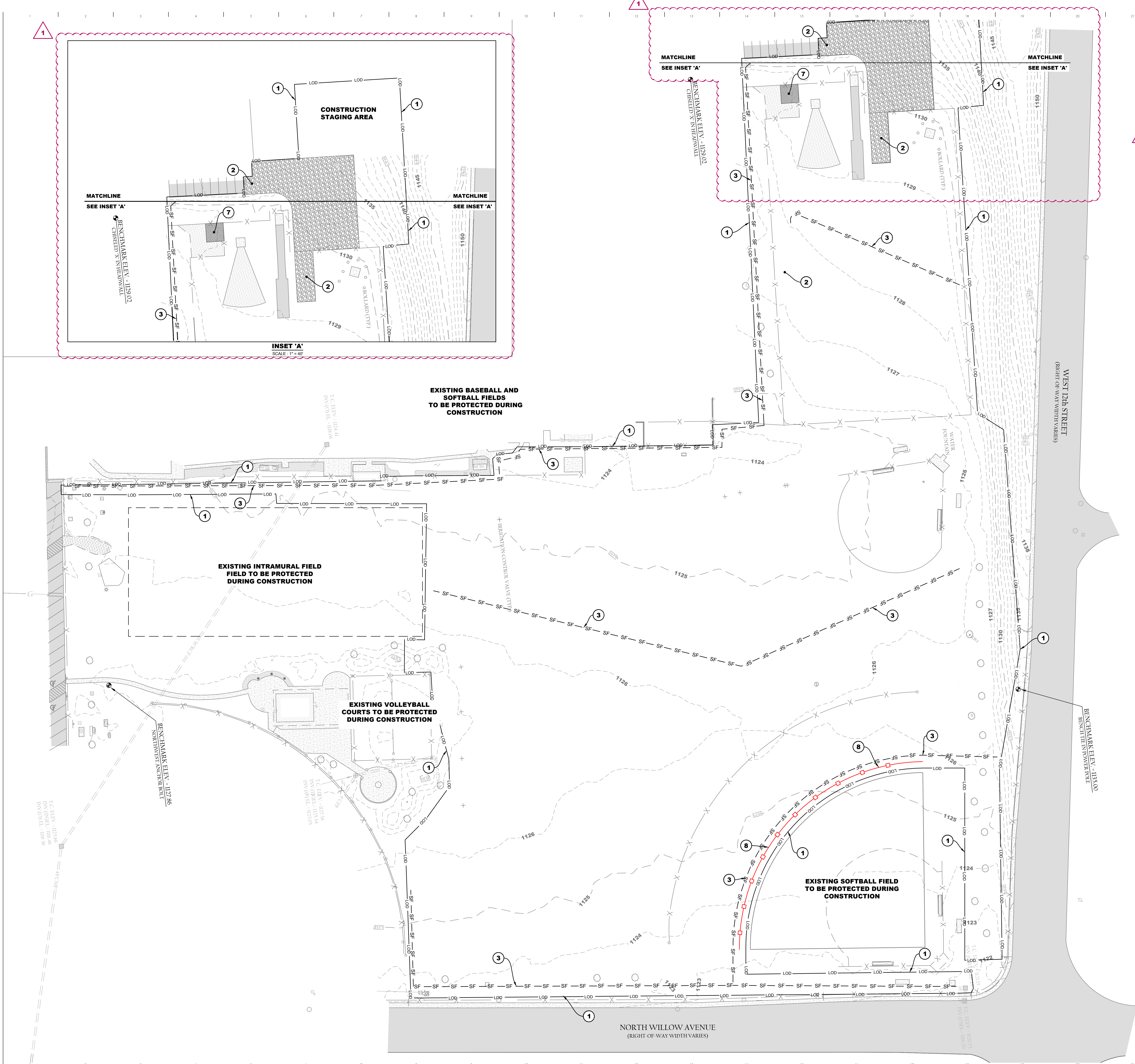
DESCRIPTION DATE
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ENLARGED GRADING &
DRAINAGE PLAN

C2.05

24 JULY 2026

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- EPSC KEYNOTES:**
- 1 LIMIT OF DISTURBANCE= 10.51 ACRES ±
 - 2 PROVIDE AND INSTALL STABILIZED CONSTRUCTION ENTRANCE
 - 3 PROVIDE AND INSTALL SILT FENCE
 - 4 PROVIDE AND INSTALL TEMPORARY INLET PROTECTION
 - 5 PROVIDE AND INSTALL EROSION CONTROL MATTING ON ALL SLOPES 3:1 OR GREATER
 - 6 PROVIDE AND INSTALL WEIGHTED SEDIMENT TUBE
 - 7 PROVIDE AND INSTALL CONCRETE WASH OUT
 - 8 LOCATION OF MANDATORY CONSTRUCTION FENCING. CONTRACTOR TO PROVIDE ADDITIONAL CONSTRUCTION FENCING TO COMPLETELY ENCOMPASS THE CONSTRUCTION AREA, WHILE MAINTAINING ACCESS TO THE EXISTING INTRAMURAL FIELDS OUTSIDE OF CONSTRUCTION AREA. CONTRACTOR CAN TIE INTO EXISTING FENCES AS LONG AS IT MEETS THE AFOREMENTIONED REQUIREMENTS
 - 9 PROVIDE AND INSTALL RIP-RAP OUTLET PROTECTION
- SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED

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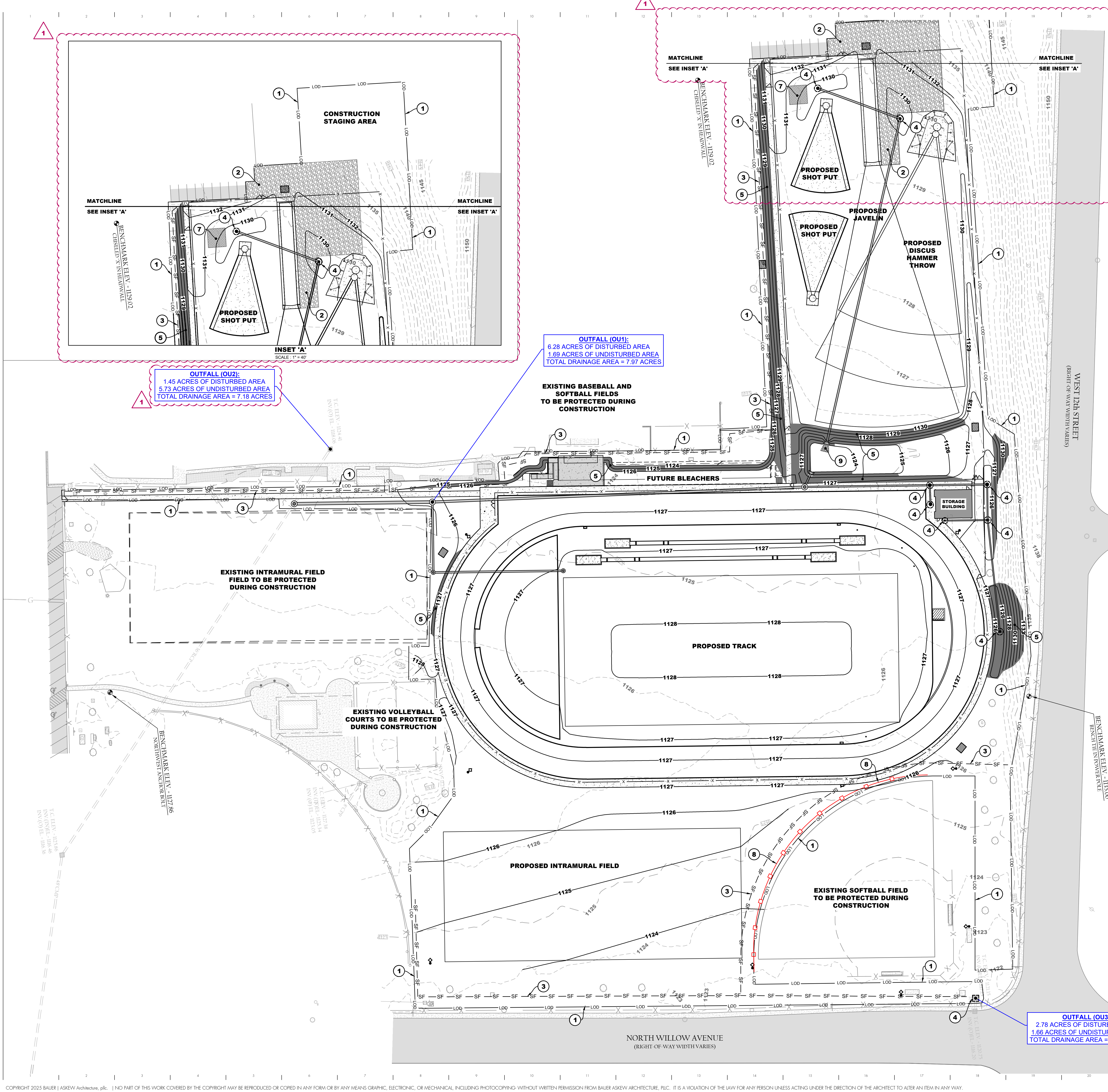
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INITIAL EPSC PLAN

C2.06

24 JULY 2026

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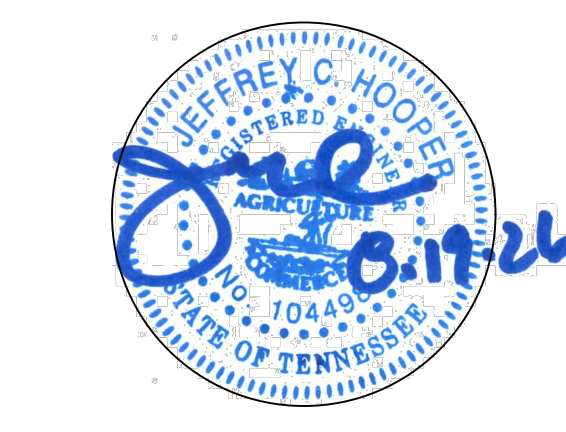
OUTFALL (OU2):
1.45 ACRES OF DISTURBED AREA
5.73 ACRES OF UNDISTURBED AREA
TOTAL DRAINAGE AREA = 7.18 ACRES

OUTFALL (OU1):
6.28 ACRES OF DISTURBED AREA
1.69 ACRES OF UNDISTURBED AREA
TOTAL DRAINAGE AREA = 7.97 ACRES

OUTFALL (OU3):
2.78 ACRES OF DISTURBED AREA
1.66 ACRES OF UNDISTURBED AREA
TOTAL DRAINAGE AREA = 4.44 ACRES

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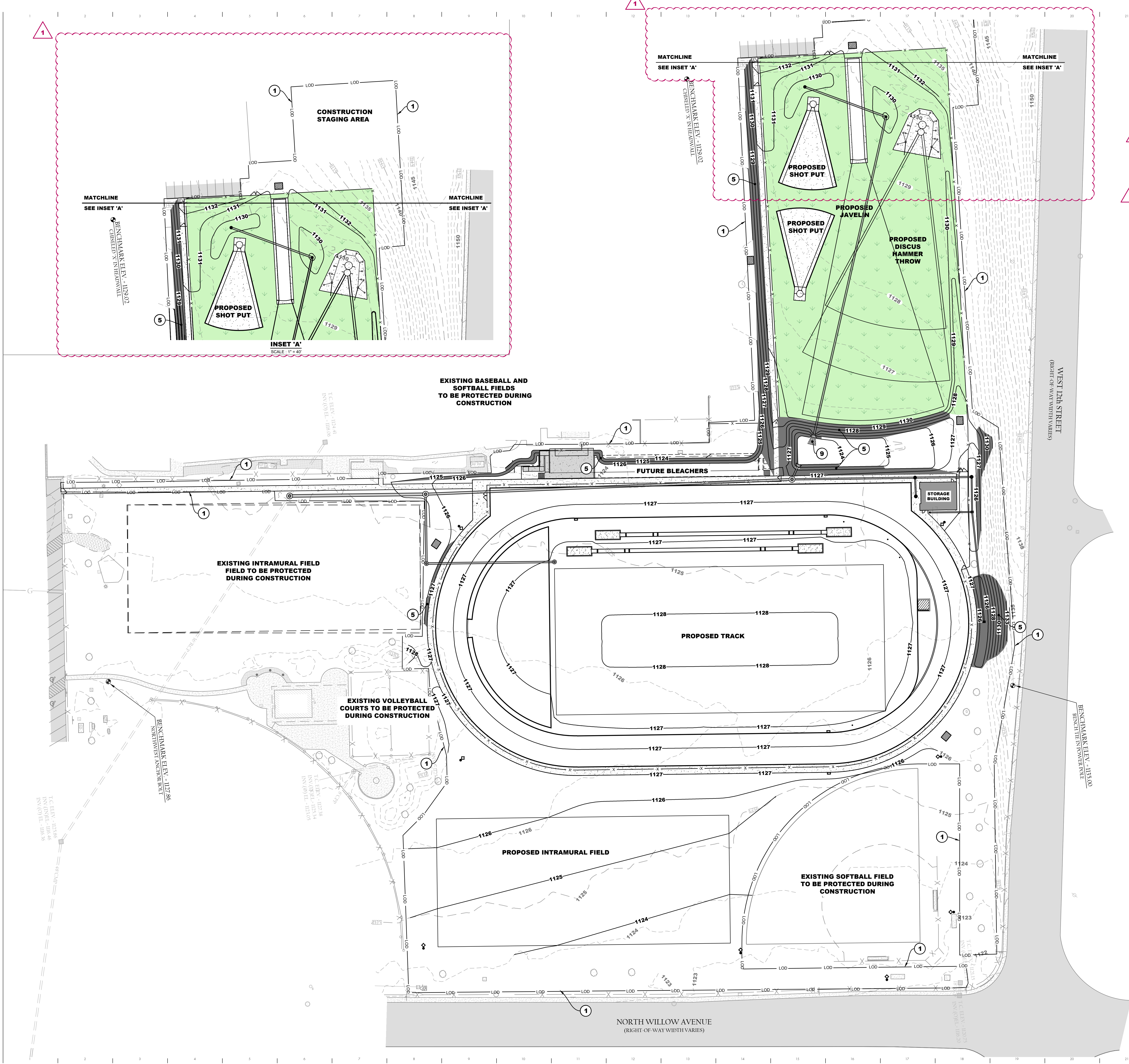
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INTERMEDIATE EPSC
PLAN

C2.07

24 JULY 2026

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 - 9 PROVIDE AND INSTALL RIP-RAP OUTLET PROTECTION
- SEE SHEET C3.01 AND C3.02 FOR DETAILS UNLESS OTHERWISE NOTED
- FINAL GROUND STABILIZATION NOTES:**
- SOD IS TO BE INSTALLED WITHIN THE THROWING EVENTS AREA AS SHOWN ON THIS PLAN
- CONTRACTOR SHALL SEED AND STRAW ALL OTHER DISTURBED AREAS ON SITE OUTSIDE OF THE PROPOSED HARDSCAPES AND ARTIFICIAL TURF FIELD WHERE GRADING HAS OCCURRED.

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DESCRIPTION	DATE
ADDENDUM 1	08/19/26

FINAL EPSC PLAN

C2.08

24 JULY 2026

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GENERAL INFORMATION

THIS STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS DEVELOPED IN ACCORDANCE WITH THE TENNESSEE GENERAL NPDES PERMIT FOR DISCHARGES OF STORMWATER WITH CONSTRUCTION ACTIVITY (TNCGP, GENERAL PERMIT NO. TNR100000), EFFECTIVE OCTOBER 1, 2021 AND IS PREPARED USING SOUND ENGINEERING PRACTICES. BARGE CIVIL ASSOCIATES, LLC, PERSONNEL INVOLVED WITH THE DEVELOPMENT OF THIS PLAN HAVE COMPLETED EITHER THE FUNDAMENTALS OF EROSION PREVENTION & SEDIMENT CONTROL FOR CONSTRUCTION SITES AND/OR THE DESIGN PRINCIPLES OF EROSION PREVENTION & SEDIMENT CONTROLS FOR CONSTRUCTION SITES COURSES AVAILABLE FROM THE STATE OF TENNESSEE.

AS INSTRUCTED IN PART 3 OF THE TNCGP, THIS PLAN AND ALL ATTACHMENTS ARE HEREBY SUBMITTED TO THE LOCAL ENVIRONMENTAL FIELD OFFICE (EFO), ALONG WITH THE COMPLETE, CORRECTLY SIGNED NOTICE OF INTENT (NOI).

SITE WIDE/PRIMARY PERMITTEE (OWNER):

TENNESSEE TECHNOLOGY UNIVERSITY	COMPANY
DR. CLAIRE STINSON	PRINTED NAME
SR. VICE PRESIDENT FOR PLANNING AND FINANCE	TITLE

SECONDARY PERMITTEE (CONTRACTOR):

COMPANY	PRINTED NAME
TITLE	TITLE

THE ABOVE-NAMED CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND INSPECTIONS OF EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES AND ALL INSPECTION DOCUMENTATION REQUIRED BY TDEC.

PRIMARY PERMITTEE (OWNER) RESPONSIBILITIES:

- OWNER WILL BE RESPONSIBLE FOR GENERAL OVERSIGHT OF THE PROJECT, INCLUDING REVIEW OF THE SWPPP AND ANY AMENDMENTS, INSPECT CONTRACTOR'S PERFORMATIVE ACTION FOR CONFORMANCE WITH THE PERMIT REQUIREMENTS.
- OWNER WILL PARTICIPATE DURING SELF-INSPECTIONS CONDUCTED BY THE PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS.
- OWNER WILL PARTICIPATE IN BI-WEEKLY MEETINGS TO DISCUSS CGP COMPLIANCE ISSUES.

SECONDARY PERMITTEE (CONTRACTOR) RESPONSIBILITIES:

- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL MAINTAIN THE SWPPP DOCUMENTATION AND WILL CONDUCT AND DOCUMENT SELF-INSPECTIONS REQUIRED BY THE TENNESSEE CGP FOR AREAS OF THE PROJECT SITE COVERED BY THIS SWPPP.
- PRIMARY CONTRACTOR WILL PROVIDE COPIES OF INSPECTION REPORTS TO OWNER WITHIN 24 HOURS FOLLOWING EACH INSPECTION. INCIDENTS OF NON-COMPLIANCE WILL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER.
- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL BE RESPONSIBLE FOR MAINTAINING COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE SWPPP, INCLUDING INSTALLATION OF EROSION AND SEDIMENT CONTROLS, AND THE REQUIREMENTS IN THE TNCGP. ANY BMP CHANGES THAT WOULD TRIGGER THE NEED FOR A SWPPP MODIFICATION WILL BE PROMPTLY COMMUNICATED TO THE OWNER.
- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL MAINTAIN EROSION AND SEDIMENT CONTROL BMPS IN ALL AREAS OF THE SITE UNDER ITS DAY-TO-DAY CONTROL.
- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL PROVIDE ADEQUATELY DESIGNATED CONCRETE WASHOUT AREAS AND WILL BE RESPONSIBLE FOR PROPER DISPOSAL OF THE CONCRETE, MORTAR, OR GROUT COLLECTED THERE.
- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL BE RESPONSIBLE FOR INSPECTION AND REPLACEMENT OF ANY BMPS AS NECESSARY.
- PRIMARY CONTRACTOR AND ITS SUBCONTRACTORS WILL NOT STORE ERODIBLE OR HAZARDOUS MATERIALS ON THE PROPERTY.

THE CONTRACTOR AS NAMED ABOVE IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND INSPECTIONS OF EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES AND ALL INSPECTION DOCUMENTATION REQUIRED BY TDEC.

CURRENT VERSIONS OF THIS SWPPP, THE NOI, AND THE NOTICE OF COVERAGE (NOC) WILL BE KEPT ON SITE FOR THE DURATION OF THE PROJECT. THESE ITEMS WILL BE AVAILABLE FOR USE BY ALL OPERATORS AND SITE PERSONNEL INVOLVED WITH EPSC, AND WILL BE AVAILABLE TO TDEC PERSONNEL VISITING THE SITE. A NOTICE WILL BE POSTED NEAR THE CONSTRUCTION ENTRANCE DURING CONSTRUCTION CONTAINING A COPY OF THE NOC WITH THE NPDES TRACKING NUMBER ASSIGNED BY THE EFO, THE NAME AND TELEPHONE NUMBER OF A CONTACT PERSON FOR THE DEVELOPMENT, AND A BRIEF DESCRIPTION OF THE PROJECT.

ANY NEW CONTRACTOR ON THE PROJECT THAT IS RESPONSIBLE FOR INSTALLING, INSPECTING, OR MAINTAINING EPSC MEASURES WILL SIGN THE CONTRACTOR'S CERTIFICATION ON A COPY OF THE NOI AND WILL SUBMIT IT TO THE LOCAL EFO. ANY CORRESPONDENCE WITH TDEC OR ANY EFO WILL REFERENCE THE NPDES TRACKING NUMBER ASSIGNED BY TDEC TO THE PROJECT. THE CONTRACTOR WILL SUBMIT A NOTICE OF TERMINATION (NOT) AFTER CONSTRUCTION IS COMPLETE AND FINAL STABILIZATION (PART 9, TNCGP) OF ALL DISTURBED AREAS HAS BEEN ACHIEVED.

IT IS THE INTENTION AND GOAL OF THE TNCGP AND THIS SWPPP THAT CONSTRUCTION ACTIVITY SHALL BE CARRIED OUT IN SUCH A MANNER THAT WILL PREVENT VIOLATIONS OF WATER QUALITY CRITERIA AS STATED IN CHAPTER 1200-04-03.03 OF THE TDEC RULES. THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- PREVENTION OF ANY DISCHARGE THAT CAUSES A CONDITION IN WHICH VISIBLE SOLIDS, BOTTOM DEPOSITS, OR TURBIDITY IMPAIRS THE USEFULNESS OF WATERS OF THE STATE FOR ANY OF THE USES DESIGNATED FOR THAT WATER BODY PER TDEC RULES, CHAPTER 1200-04-4.
- THERE SHALL BE NO DISTINCTLY VISIBLE FLOATING SCUM, OIL OR OTHER MATTER CONTAINED IN THE STORMWATER DISCHARGE.
- THE STORMWATER DISCHARGE MUST NOT CAUSE AN OBJECTIONABLE COLOR CONTRAST IN THE RECEIVING STREAM.
- THE STORMWATER DISCHARGE IN NO MATERIALS IN CONCENTRATIONS SUFFICIENT TO BE HAZARDOUS OR OTHERWISE DETRIMENTAL TO HUMANS, LIVESTOCK, WILDLIFE, PLANT LIFE, OR FISH AND AQUATIC LIFE IN THE RECEIVING STREAM. THESE PROVISIONS INCLUDE SPECIES COVERED UNDER PART 1.3, SUBPART H, OF THE TNCGP.

THIS PLAN MAY BE AMENDED IN ACCORDANCE WITH CRITERIA STATED IN PART 5.4.1 OF THE TNCGP, OR FOR OTHER REASONS. WHEN THE PLANS ARE REVISED, THE CONTRACTOR WILL IMPLEMENT THE CHANGES TO EPSC MEASURES WITHIN 48 HOURS AFTER THE NEED FOR MODIFICATION IS IDENTIFIED.

IN ACCORDANCE WITH PART 5.5.3.8 OF THE TN CGP, A SITE ASSESSMENT IS NOT REQUIRED AS PART OF THIS PROJECT BECAUSE THIS PROJECT DOES NOT DRAIN TO AN IMPAIRED OR THREATENED WATERS AND ALL OUTFALLS ARE LESS THAN 10 ACRES

SWPPP REQUIREMENTS

HAS THE SWPPP BEEN PREPARED BY A QUALIFIED INDIVIDUAL THAT HAS AT LEAST ONE OF THE FOLLOWING CERTIFICATIONS (CHECK ALL THAT APPLY BELOW) YES ☒ NO ☐

- ☐ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR
- ☐ TDEC LEVEL II
- ☒ PROFESSIONAL ENGINEER

1. DOES THE EPSC PLAN INVOLVE STRUCTURAL DESIGN, HYDRAULIC, HYDROLOGIC, OR OTHER ENGINEERING CALCULATIONS FOR EPSC STRUCTURAL MEASURES (SEDIMENT BASINS, ETC.)? YES ☐ NO ☒
IF YES, HAVE THESE PLANS BEEN PREPARED, STAMPED AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT? YES ☐ NO ☒ N/A ☒

2. DO THE PROJECT STORMWATER OUTFALLS DISCHARGE INTO THE FOLLOWING?

- ☐ WATERS WITH UNAVAILABLE PARAMETERS (CHECK ALL THAT APPLY BELOW)
- ☐ TENNESSEE KNOWN EXCEPTIONAL WATERS

IF YES, HAVE THESE PLANS BEEN PREPARED BY A QUALIFIED INDIVIDUAL WHO HAS COMPLETED TDEC LEVEL II?

YES ☐ NO ☐ N/A ☒

IF YES, HAVE THESE EPSC MEASURES BEEN DESIGNED FOR A 5-YR/24-HR EVENT? YES ☐ NO ☐ N/A ☒

IF NO, HAVE THESE EPSC MEASURES BEEN DESIGNED FOR A 2-YR/24-HR EVENT? YES ☒ NO ☐ N/A ☐

SITE DESCRIPTION

- PROJECT LIMITS: REFER TO EROSION CONTROL SHEETS C2.06 - C2.08
PROJECT DESCRIPTION: THIS PROJECT INCLUDES THE CONSTRUCTION OF A NEW TRACK AND FIELD FACILITY ON THE TENNESSEE TECH UNIVERSITY CAMPUS.
TITLE: TTU TRACK AND FIELD FACILITY
COUNTY: PUTNAM
LOCATION: 980 N WILLOW AVE COOKEVILLE, TN 38501
- SITE MAPS: SEE USGS TOPOGRAPHIC MAP ON THIS SHEET
- DESCRIPTION OF EXISTING SITE TOPOGRAPHY: THE EXISTING SITE CONTAINS EXISTING ATHLETIC FIELDS INCLUDING SAND PITS, ASPHALT AND CONCRETE PADS FOR TRACK AND FIELD EVENTS. THE SITE DRAINS TO TWO BASINS, ONE DRAINING WEST TOWARDS AND EXISTING SOFTBALL FIELD AND SECOND ONE DRAINS EAST TOWARDS THE CORNER OF NORTH WILLOW AVENUE AND WEST 12TH STREET.
- MAJOR SOIL DISTURBING ACTIVITIES:
 - CLEARING AND GRUBBING
 - EXCAVATION
 - CUTTING AND FILLING
 - FINAL GRADING AND SHAPING
 - UTILITIES
- TOTAL PROJECT AREA: 10.51 ACRES
TOTAL AREA TO BE DISTURBED: 10.51 ACRES
IF GREATER THAN 50 ACRES, HAS CONSTRUCTION PROJECT PHASING BEEN SPECIFIED IN SECTION 3 BELOW AND IN THE PLANS?
YES ☐ NO ☐ N/A ☒
- ARE THERE SEASONAL LIMITATIONS ON WORK? YES ☐ NO ☒
IF YES, DESCRIBE AND LIST THE CORRESPONDING PLAN SHEET:
- SOIL PROPERTIES: THE SITE IS MADE UP OF TYPE B, TYPE C, AND TYPE D SOILS.
- PROJECT RUNOFF COEFFICIENTS AND AREAS:
RUNOFF COEFFICIENTS FOR CONTRIBUTING DRAINAGE BASIN TO SITE OUTFALL:
AREA TYPE
EXISTING CONDITIONS
PROPOSED CONDITIONS
- STORMWATER MANAGEMENT:
STORMWATER WILL BE ROUTED TO THE THREE OUTFALLS THROUGH A SWALE, STORM SEWERS, AND INLETS. SILT FENCE WILL BE THE PRIMARY EPSC MEASURE. EROSION CONTROL MATTING WILL BE USED ON ALL SLOPES 3:1 OR GREATER. ABOVE GROUND DETENTION VIA A DETENTION POND WILL BE USED TO DETAIN STORMWATER. BELOW GROUND DETENTION WILL BE USED VIA THE TURF SYSTEM TO DETAIN STORMWATER AND FOR WATER QUALITY REQUIREMENTS.

303(D) SPECIAL REQUIREMENTS

STORMWATER RUNOFF FROM THE SITE ULTIMATELY DISCHARGES TO EAST BLACKBURN FORK (TN05130106008_0200), WHICH IS NOT LISTED ON THE EPA FINAL 2024 303(D) LIST OF IMPAIRED AND THREATENED WATERS IN TENNESSEE.

SAFE DAMS ACT INFORMATION

THE ONSITE STORMWATER STORAGE BASINS DO NOT MEET THE CRITERIA TO BE REGULATED BY THE SAFE DAMS ACT.

EROSION AND SEDIMENT CONTROLS

STABILIZATION PRACTICES

TEMPORARY STABILIZATION

DENuded AREAS, SOIL STOCKPILES, DIKES, DAMS, CHANNELS, ETC. ARE TO BE SEEDED AND MULCHED. AREAS AND TIME OF EXPOSURE OF UNPROTECTED SOILS SHALL BE KEPT TO A MAXIMUM OF 14 DAYS, WITH SLOPES (3:1 AND GREATER) LIMITED TO A MAXIMUM OF 7 DAYS. SUCH AREAS ARE TO IMMEDIATELY RECEIVE SEED AND MULCH STABILIZATION FOLLOWING THIS TIME PERIOD. ON STEEP SLOPES AND CHANNELS, SOD SHALL BE FASTENED TO THE GROUND WITH WIRE STAPLES OR WOOD PEGS. WHERE SURFACE WATER CANNOT BE DIVERTED FROM FLOWING OVER THE FACE OF SLOPES, INSTALL A STRIP OF HEAVY JUTE OR PLASTIC NETTING AND FASTEN TIGHT ALONG THE CROWN OR TOP OF THE SLOPE FOR EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. SUITABLE BARRICADES AND GUARDS SHALL BE ERECTED TO PREVENT EQUIPMENT OR MATERIAL FROM BEING PLACED ON ANY PLANTED AREA. PLASTIC LINING SHALL BE USED ON ALL DITCHES AND EXPOSED SURFACES WHEN TIME DOES NOT PERMIT THE CONTRACTOR TO USE SEED AND MULCH FOR STABILIZATION.

PERMANENT STABILIZATION

SLOPES AND DITCHES THAT ARE CONSTRUCTED TO FINAL SUB-GRADE OR A PORTION OF ANY SLOPE OR DITCH THAT IS CONSTRUCTED TO SUB-GRADE SHALL IMMEDIATELY RECEIVE TOPSOIL AND FINAL STABILIZATION. ALL SLOPES ARE TO RECEIVE STABILIZATION AS INDICATED ON THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING SEEDED AREAS TO PREVENT THE SOIL FROM DRYING OUT UNTIL APPROVED OR ACCEPTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESEEDING BARE SPOTS FOR A PERIOD OF ONE YEAR AFTER INSTALLATION OR ACCEPTANCE OF THE PROJECT.

STRUCTURAL PRACTICES

EROSION CONTROL BARRIERS, INLET PROTECTION DEVICES, AND OTHER BMP PRACTICES WILL BE USED AS FRONT-LINE EROSION CONTROL DEVICES DURING CONSTRUCTION. THE FOLLOWING PROVIDES A LIST OF STRUCTURAL DEVICES TO BE INSTALLED FOR THIS PROJECT:

- SILT FENCE
- RIP RAP PIPE INLET / OUTLET PROTECTION
- EROSION CONTROL BLANKET
- WEIGHTED SEDIMENT TUBE
- CONSTRUCTION ENTRANCE / EXIT

ADDITIONAL ITEMS

THE NEED FOR DEWATERING IS NOT ANTICIPATED WITH THIS PROJECT.

ALL EPSC MEASURES AND RUNOFF CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND SPECIFICATIONS.

IF SEDIMENT ESCAPES THE PERMITTED AREA, ALL SEDIMENT ACCUMULATIONS BEYOND THE PROJECT BOUNDARY MUST BE CLEANED UP AND REMOVED FROM THE AREA AS SOON AS POSSIBLE TO MINIMIZE OFF-SITE IMPACTS. SHOULD SEDIMENT REACH A STREAM OR SOME OTHER BODY OF WATER, THE PERMITTEE MUST NOT INITIATE REMEDIATION WITHOUT FIRST NOTIFYING AND CONSULTING WITH TDEC. THIS PERMIT DOES NOT AUTHORIZE ACCESS TO PRIVATE PROPERTY AND THUS THE PERMITTEE MUST SETTLE THE REMEDIATION WITH THE ADJOINING LANDOWNER(S) AFFECTED BY THE OFFSITE SEDIMENTATION.

OFFSITE MATERIAL STORAGE IS ALLOWED SOLELY BY THE PERMITTED PROJECT

ONSITE WASTE DISPOSAL

THERE IS NO ON-SITE WASTE DISPOSAL AS PART OF THIS DEVELOPMENT.

OFF-SITE STORMWATER

OFF-SITE STORMWATER WILL BE ROUTED AROUND THE SITE THROUGH A SWALE LOCATED TO THE NORTH OF THE SITE ALONG WEST 12TH STREET. THIS SWALE WILL REMAIN AFTER CONSTRUCTION.

FEDERALLY PROTECTED WILDLIFE

THE PROPOSED CONSTRUCTION ACTIVITIES ARE NOT ANTICIPATED TO DISTURB NOR HARM ANY LEGALLY PROTECTED STATE OR FEDERAL LISTED THREATENED OR ENDANGERED AQUATIC LIFE AND/OR HABITAT. THE PERMITTEE MUST NOTIFY TDEC IMMEDIATELY IF ANY ENDANGERED SPECIES ARE ENCOUNTERED DURING CONSTRUCTION. TDEC PROHIBITS THE TAKING OF ANY OF THESE SPECIES.

INSPECTIONS

INSPECTION PERSONNEL

INSPECTION PERSONNEL SHOULD BE EMPLOYEES OF THE PERMIT APPLICANT, THE PRIMARY CONTRACTOR, OR ITS SUBCONTRACTORS. INSPECTORS PERFORMING THE REQUIRED TWICE WEEKLY INSPECTIONS ARE TO HAVE AN ACTIVE CERTIFICATION BY COMPLETING THE FUNDAMENTALS OF EROSION PREVENTION AND SEDIMENT CONTROL LEVEL I COURSE. A COPY OF THE CERTIFICATION OR TRAINING RECORD SHOULD BE KEPT ON SITE.

THE INSPECTOR SHOULD PERFORM AND DOCUMENT THE REQUIRED INSPECTIONS PER THE ATTACHED INSPECTION REPORT. THE INSPECTOR MAY ALSO HAVE THE FOLLOWING RESPONSIBILITIES:

- OVERSEE THE REQUIREMENTS OF OTHER CONSTRUCTION-RELATED PERMITS, SUCH AS AQUATIC RESOURCES ALTERATION PERMIT OR OTHER SUCH CONSTRUCTION ACTIVITY RELATED PERMITS.
- UPDATE FIELD SWPPPS.
- CONDUCT PRE-CONSTRUCTION INSPECTION TO VERIFY THAT UNDISTURBED AREAS HAVE BEEN PROPERLY MARKED AND INITIAL MEASURES HAVE BEEN INSTALLED.
- INFORM THE PERMIT HOLDER OF ACTIVITIES THAT MAY BE NECESSARY TO GAIN OR REMAIN IN COMPLIANCE WITH THE CGP AND OTHER ENVIRONMENTAL PERMITS.

INSPECTION SCHEDULE AND PROCEDURES

INSPECTIONS ARE TO BE PERFORMED AT LEAST EVERY CALENDAR WEEK AND WILL BE PERFORMED AT LEAST 72 HOURS APART. A COPY OF THE INSPECTION FORM IS ATTACHED IN THE APPENDIX.

WHERE SITES OR PORTIONS OF THE CONSTRUCTION SITE HAVE BEEN TEMPORARILY STABILIZED, OR RUNOFF IS UNLIKELY DUE TO WINTER CONDITIONS OR DUE TO EXTREME DRAUGHT, SUCH INSPECTION ONLY HAS TO BE CONDUCTED ONCE PER MONTH UNTIL THAWING OR PRECIPITATION RESULTS IN RUNOFF OR CONSTRUCTION ACTIVITY RESUMES.

INSPECTION REQUIREMENTS DO NOT APPLY TO DEFINABLE AREAS THAT HAVE BEEN FINALLY STABILIZED, AS DESCRIBED IN THE CGP.

BASED ON THE RESULTS OF THE INSPECTION, ANY INADEQUATE CONTROL MEASURES IN DISREPAIR WILL BE REPLACED OR MODIFIED, OR REPAIRED AS NECESSARY, BEFORE THE NEXT RAIN EVENT, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE NEED IS IDENTIFIED.

BASED ON THE RESULTS OF THE INSPECTION, THE SITE DESCRIPTION AND POLLUTION PREVENTION MEASURES IDENTIFIED IN THE SWPPP WILL BE REVISED AS APPROPRIATE, BUT IN NO CASE LATER THAN 7 DAYS FOLLOWING THE INSPECTION. SUCH MODIFICATIONS WILL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE SWPPP, BUT IN NO CASE LATER THAN 14 DAYS FOLLOWING THE INSPECTION.

INSPECTION DOCUMENTATION WILL BE MAINTAINED ON SITE AND MADE AVAILABLE TO THE DIVISION UPON REQUEST. INSPECTION REPORTS MUST BE SUBMITTED TO TDEC WITHIN 10 DAYS OF THE REQUEST. IF THE DIVISION REQUESTS THE CONSTRUCTION STORMWATER INSPECTION CERTIFICATION FORM TO BE SUBMITTED, THE FORM MUST CONTAIN THE PRINTED NAME AND SIGNATURE OF THE TRAINED CERTIFIED INSPECTOR AND THE PERSON WHO MEETS THE SIGNATORY REQUIREMENTS OF THE TN CGP.

FOR DISCHARGES INTO WATERS WITH UNAVAILABLE PARAMETERS OR EXCEPTIONAL TENNESSEE WATERS:

THE PERMITTEE WILL PERFORM INSPECTIONS DESCRIBED ABOVE AT LEAST EVERY CALENDAR WEEK. INSPECTIONS WILL BE PERFORMED AT LEAST 72 HOURS APART.

THE PERMITTEE MUST CERTIFY ON THE INSPECTION FORM PROVIDED WHETHER OR NOT ALL PLANNED AND DESIGNED EROSION PREVENTION AND SEDIMENT CONTROLS ARE INSTALLED AND IN WORKING ORDER. THE FORM MUST CONTAIN THE PRINTED NAME AND SIGNATURE OF THE INSPECTOR AND THE CERTIFICATION MUST BE EXECUTED BY A PERSON WHO MEETS THE SIGNATORY REQUIREMENTS OF THE TN CGP. THE RECORD OF INSPECTIONS MUST BE KEPT AT THE CONSTRUCTION SITE WITH A COPY OF THE SWPPP.

SPILLS AND NON-STORM WATER CONTINGENCIES

ALL ON-SITE FUELING OF EQUIPMENT AND VEHICLES WILL BE CONDUCTED NEAR THE CONSTRUCTION ENTRANCE/STAGING AREA. ANY SPILLAGE WILL BE REMOVED IMMEDIATELY. CONTAMINATED SOILS WILL BE PLACED ON HEAVY PLASTIC AND COVERED OR PLACED INTO APPROVED CONTAINERS TO PREVENT CONTACT WITH STORM WATER. ALL FUEL TANKS WILL BE IN THE CONTAINMENT AREA. OILS, OTHER VEHICLE FLUIDS, PAINTS, AND SOLVENTS WILL BE STORED IN THE CONSTRUCTION TRAILER. ANY SPILL WILL BE REPORTED TO A REPRESENTATIVE OF THE GENERAL CONTRACTOR FOR THE PROJECT.

IF A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTING QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302 OCCURS DURING A 24-HOUR PERIOD, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE PERMITTEE WHO SHALL THEN DO THE FOLLOWING: (1) NOTIFY THE NATIONAL RESPONSE CENTER (NRC) (800-424-8802) AND THE TENNESSEE EMERGENCY MANAGEMENT AGENCY (TEMA) (EMERGENCIES: 800-262-3300; NON-EMERGENCIES: 800-262-3400); AS WELL AS THE LOCAL EFO. ALSO, THE OWNER WILL PREPARE A REVISION OF THIS DOCUMENT TO IDENTIFY MEASURES WHICH WILL PREVENT THE REOCCURRENCE OF SUCH RELEASES.

EACH CONTRACTOR IS RESPONSIBLE TO PROVIDE LITTER CONTROL FOR TRASH GENERATED BY HIS CREW. A PROPER WASTE DISPOSAL AREA, SUCH AS A DUMPSTER LOCATED NEAR THE CONSTRUCTION TRAILER, SHALL BE PROVIDED AND WILL BE LIMITED TO GARBAGE AND PAPER TRASH ONLY. PAINT CANS, OIL CANS, USED OIL, AND FILTERS WILL BE CONTAINED AND DISPOSED OF BY THE CONTRACTOR BY TAKING THEM TO THE COUNTY'S HAZARDOUS WASTE DISPOSAL CENTER.

THE PERMITTEE MUST DESIGN, INSTALL, IMPLEMENT, AND MAINTAIN EFFECTIVE POLLUTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS. AT A MINIMUM, SUCH MEASURES MUST BE DESIGNED, INSTALLED, IMPLEMENTED AND MAINTAINED TO THE CRITERIA SET FORTH IN PART 4.1.4 OF THE TNCGP.

THE FOLLOWING INCLUDES, BUT IS NOT LIMITED TO, DISCHARGES THAT ARE PROHIBITED AND NOT COVERED BY THIS SWPPP OR THE TNCGP:

- WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL.
- WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS, AND OTHER CONSTRUCTION MATERIAL.
- FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE.
- SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

DISCHARGES FROM DEWATERING ACTIVITIES, INCLUDING DISCHARGES FROM DEWATERING OF TRENCHES AND EXCAVATIONS, ARE PROHIBITED UNLESS MANAGED BY APPROPRIATE CONTROLS. APPROPRIATE CONTROLS INCLUDE, BUT ARE NOT LIMITED TO: WEIR TANK, DEWATERING TANK, GRAVITY BAG FILTER, SAND MEDIA, PARTICULATE FILTER, PRESSURIZED BAG FILTER, CARTRIDGE FILTER, OR OTHER CONTROL UNITS PROVIDING THE LEVEL OF TREATMENT NECESSARY TO COMPLY WITH PERMIT REQUIREMENTS (PART 4.1.3, TNCGP).

PROJECT SEQUENCING

1. EPSC MEASURES ARE TO BE INSTALLED PER THE EROSION CONTROL PLAN SHEETS AND THIS SWPPP. ALL EPSC MEASURES IDENTIFIED ON THE EROSION CONTROL PLAN AND IN THIS SWPPP ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK. AFTER THESE MEASURES HAVE BEEN INSTALLED, A SITE ASSESSMENT SHALL BE COMPLETED WITHIN A MONTH OF CONSTRUCTION COMMENCING. ASSESSMENT INSPECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE CRITERIA SET FORTH IN PART 5.5.3.8 OF THE TNCGP.

2. MARK LIMITS OF DISTURBANCE WITH HIGH VISIBILITY TAPE, FLAGGING, OR FENCE.

3. PRIOR TO BEGINNING ANY WORK, ALL APPLICABLE EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCE SHOULD BE INSTALLED AS INDICATED ON THE EPSC PLANS.

4. PERFORM CLEARING AND GRUBBING NOT MORE THAN 14 DAYS PRIOR TO GRADING OR EARTH-MOVING. REFER TO THE STABILIZATION PRACTICES DESCRIBED ON THIS SHEET. CLEARING AND GRUBBING SHOULD BE KEPT TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.

5. EXCAVATION CAN COMMENCE ONCE AREA HAS BEEN CLEARED AND GRUBBED. EXCAVATED MATERIAL SHALL NOT BE PLACED ADJACENT TO WATERWAYS OR AREAS WHERE STORMWATER RUNOFF WILL BE DIRECTED SO AS TO PREVENT EROSION AND SILTATION. EXCESS BORROW MATERIAL REMOVED FROM THE CONSTRUCTION SITE SHALL BE STABILIZED AND THE BASE OF ANY STOCKPILE SHALL BE PROTECTED BY SILT FENCE.

6. EXCAVATION FOR UTILITIES SHALL BE EXECUTED IN A TIMELY MANNER AND BACKFILLED. INLET AND OUTLET PROTECTION FOR STORM SEWER SHALL BE INSTALLED TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM. ALL OUTLETS FOR STORMWATER DISCHARGE MUST BE STABILIZED BEFORE THEY BECOME OPERATIONAL.

7. DISTURBED AREAS ON THE SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE.

8. INSPECTIONS SHALL BE PERFORMED AT LEAST TWICE PER WEEK AT LEAST 72 HOURS APART. INSPECTION REPORTS ON-1173 FOUND AT:

[HTTPS://WWW.TN.GOV/ENVIRON/MENT-PERMIT-PERMIT-WATER-PERMIT/npdes-permits/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html](https://www.tn.gov/environ/ment-permit-permits/water-permits/npdes-permits/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html) WILL BE FILLED OUT AND KEPT AT THE CONSTRUCTION SITE WITH A COPY OF THE SWPPP. THESE REPORTS MUST BE CERTIFIED BY THE PERMITTEE THAT THE REQUIRED INSPECTIONS WERE PERFORMED AND WHETHER OR NOT ALL PLANNED AND DESIGNED DEVICES ARE INSTALLED AND IN WORKING ORDER. INSPECTION REPORTS SHOULD INCLUDE OBSERVED CONDITIONS, RAIN EVENTS AND ANY ACTION TAKEN AS A RESULT OF INSPECTION.

9. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS, SILT FENCES, AND OTHER SEDIMENT CONTROL MEASURES BEFORE THE DESIGN CAPACITY OF THE STRUCTURE HAS BEEN REDUCED BY 50% LITTER, CONSTRUCTION DEBRIS AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER WILL BE PICKED UP PRIOR TO ANTICIPATED STORM EVENTS (E.G. FORECASTED BY LOCAL WEATHER REPORTS), OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES (E.G. SCREENING OUTFALLS, DAILY PICK-UP, ETC.). AFTER USE, SILT FENCES WILL BE REMOVED OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES. TEMPORARY MEASURES MAY BE REMOVED AT THE BEGINNING OF THE WORKDAY, BUT WILL BE REPLACED AT THE END OF THE WORKDAY.

10. SITE STABILIZATION WILL BE ACCOMPLISHED AS SOON AS PRACTICABLE AFTER ATTAINMENT OF FINAL GRADE AND NO LATER THAN SEVEN DAYS AFTER ATTAINING FINAL GRADE. SHOULD EARTH-DISTURBING ACTIVITY TEMPORARILY CEASE, TEMPORARY STABILIZATION WILL BE APPLIED WITHIN SEVEN DAYS IF THE ACTIVITY WILL NOT RESUME WITHIN 14 DAYS. WHEN STABILIZATION MEASURES INCLUDE SEEDING AND MULCHING, SEEDING MIXTURES WILL BE AS SPECIFIED IN THE STABILIZATION PLAN SHOW BELOW ON THIS SHEET. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED WILL BE RECORDED AND MAINTAINED ON THE SITE. NOTE THAT ANY AREAS DISTURBED BY CONSTRUCTION WILL BE RE-STABILIZED AT THIS TIME AS WELL.

11. AFTER ALL AREAS HAVE BEEN STABILIZED, THE CONTRACTOR WILL REMOVE THE TEMPORARY EPSC MEASURES AND SUBMIT A NOTICE OF TERMINATION (NOT) TO TDEC.

STREAM, OUTFALL, WETLAND INFORMATION

1. WILL CONSTRUCTION AND/OR EROSION PREVENTION AND SEDIMENT CONTROLS IMPACT ANY STREAMS? YES ☐ NO ☒

1.1 STREAM INFORMATION: N/A

1.2 ARE BUFFER ZONES REQUIRED? YES ☐ NO ☒

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S) _____

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER

- ☐ 60-FT FROM TOP OF BANK FOR WATERS WITH UNAVAILABLE PARAMETERS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FT)
- ☐ 30-FT FROM TOP OF BANK FOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FT)
- ☐ 75-FT FROM THE FEMA FLOODWAY LINE PER METRO NASHVILLE REQUIREMENTS

1.3 ARE THERE BUFFER EXEMPTIONS? YES ☐ NO ☐ N/A ☒

2. OUTFALL INFORMATION:

A SEDIMENT BASIN OR EQUIVALENT MEASURE(S) WILL BE PROVIDED FOR ANY OUTFALL IN A DRAINAGE AREA:

- 2.1 OF TEN ACRES OR MORE FOR AN OUTFALL(S) THAT DOES NOT DISCHARGE TO WATERS WITH UNAVAILABLE PARAMETERS OR KNOWN EXCEPTIONAL QUALITY WATER
- 2.2 OF FIVE ACRES OR MORE FOR AN OUTFALL(S) THAT DISCHARGES TO AN WATERS WITH UNAVAILABLE PARAMETERS OR KNOWN EXCEPTIONAL QUALITY WATER
- 2.3 OUTFALL TABLE

OUTFALL	DRAINAGE AREA(A/C)	SEDIMENT BASIN(Y,N,N/A)	RECEIVING RESOURCE
OU1	7.87*	N/A	EAST BLACKBURN FORK
OU2	7.18*	N/A	EAST BLACKBURN FORK
OU3	4.44*	N/A	EAST BLACKBURN FORK

*Off-site undisturbed drainage area of 1.69 acres was included for outfall (OU1), 5.73 acres was included for outfall (OU2), and 1.66 acres was included for outfall (OU3).

SEE EPSC SHEETS OR OUTFALL LOCATIONS.

3. WETLAND INFORMATION:

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WETLANDS? YES ☐ NO ☒

4. TOTAL MAXIMUM DAILY LOADS (TMDL) INFORMATION

4.1 IS THIS PROJECT LOCATED IN A WATERSHED THAT MAINTAINS AN EPA APPROVED TMDL FOR SILTATION? YES ☐ NO ☒

4.2 IF YES, IS THIS PROJECT LOCATED WITHIN A SUBWATERSHED WITH A WASTE LOAD ALLOCATION (WLA)? YES ☐ NO ☐ N/A ☒

STABILIZATION PLAN

PERMANENT SEEDING MIXTURES	PERCENTAGES
SEEDING DATES	GRASS SEED 80%
FEBRUARY 1 TO JULY 1	KENTUCKY 31 FESCUE 15%
	KOREAN LESPEDEZA 5%
	ENGLISH RYE 55%
JUNE 1 TO AUGUST 15	KENTUCKY 31 FESCUE 20%
	ENGLISH RYE 15%
	KOREAN LESPEDEZA 10%
	GERMAN MILLET 70%
APRIL 15 TO AUGUST 15	BERMUDAGRASS (HULLED) 30%
	ANNUAL LESPEDEZA 70%
AUGUST 1 TO DECEMBER 14	KENTUCKY 31 FESCUE 20%
	ENGLISH RYE 10%
	WHITE CLOVER 70%
FEBRUARY 1 TO DECEMBER 1	KENTUCKY 31 FESCUE 25%
	CROWN VETCH 5%
ENGLISH RYE	

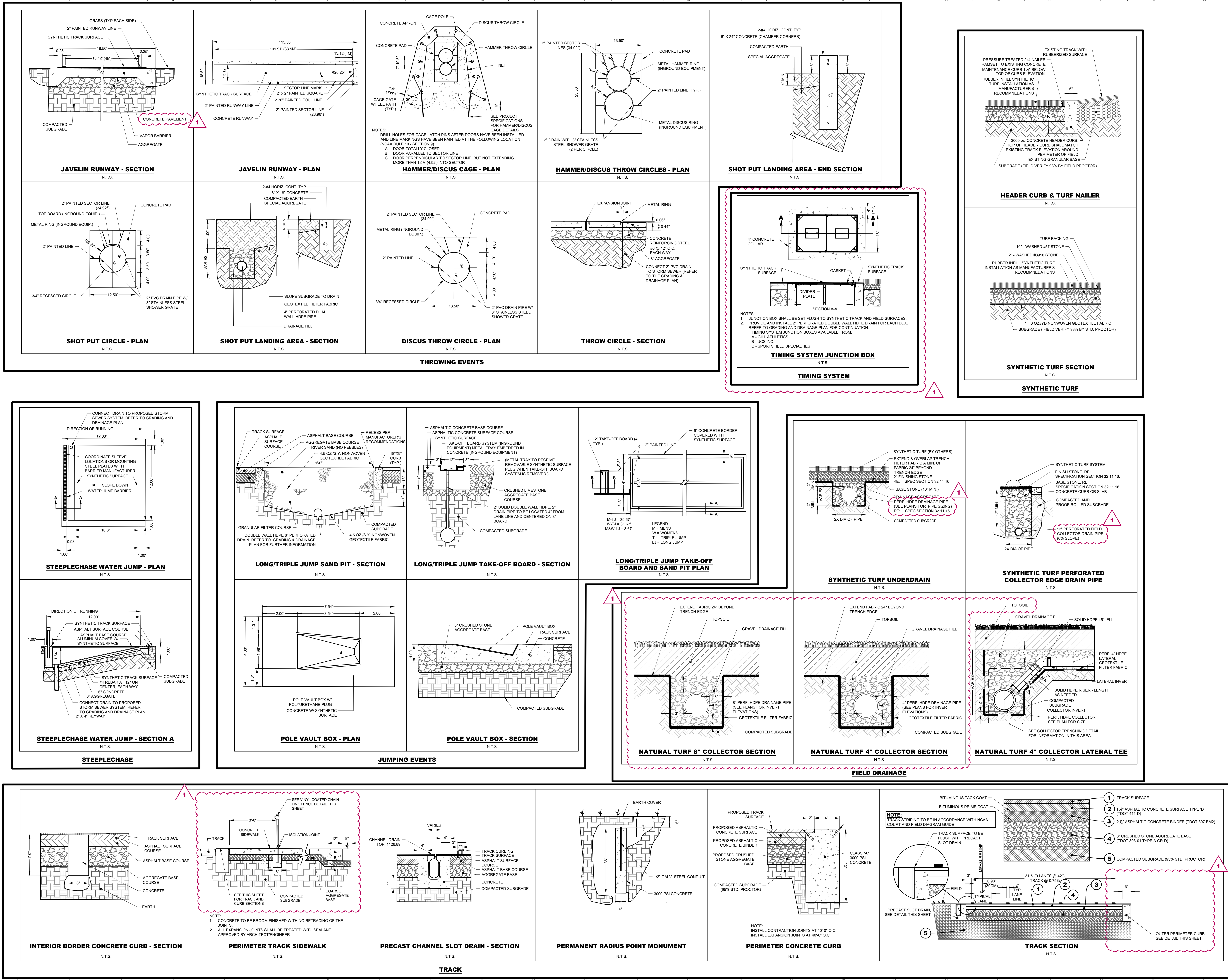
TEMPORARY SEEDING MIXTURES	PERCENTAGES
SEEDING DATES	GRASS SEED 33%
JANUARY 1 TO MAY 1	ITALIAN RYE 33%
	KOREAN LESPEDEZA 34%
MAY 1 TO JULY 15	SUDAN - SORGHUM 100%
	STARR MILLET 67%
JULY 15 TO JANUARY 1	BALBOA RYE 33%
	ITALIAN RYE

LIST OF ATTACHMENTS

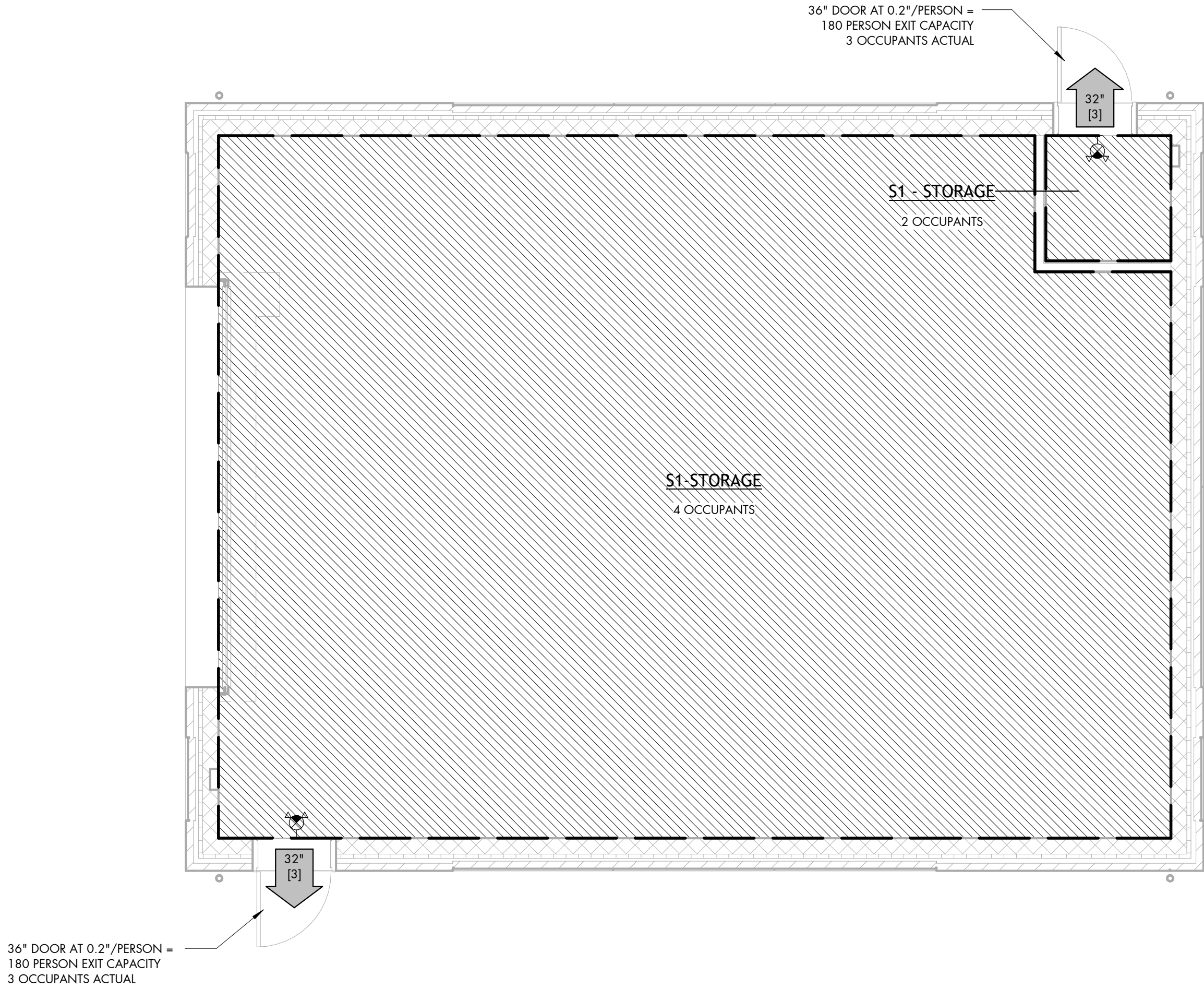
- NOTICE OF INTENT (N.O.I.)
- GRADING & EROSION CONTROL PLANS, DETAILS (SEE SHEETS C2.06 - C2.08, C3.02)

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615
1726.0047
1726.4891
615
1615
sixteenth
avenue south
1
nashville
tennessee
37212

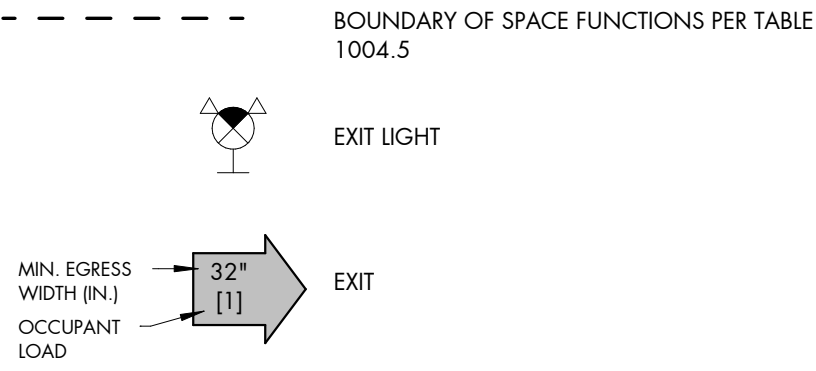


OCCUPANT LOAD SUMMARY - FIRST LEVEL					
Function of Space per 2018 IBC Table 1004.5	Area	Occupant Load Factor	# of Occupants	% of Total Area	Code Occupancy
LEVEL 1					
S1 - STORAGE					
Accessory storage areas, mechanical equipment room	25 SF	300	1	2%	S1 - STORAGE
	25 SF		1	2%	
S1-STORAGE					
Accessory storage areas, mechanical equipment room	1,038 SF	300	4	98%	S1-STORAGE
	1,038 SF		4	98%	
2	1,063 SF		5	100%	

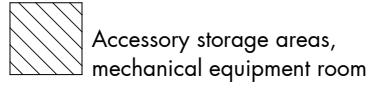


01 FLOOR PLAN
OCCUPANCY TYPE PLAN

LIFE SAFETY PLAN LEGEND



OCCUPANCY LEGEND



MATERIAL KEYNOTES

- 5/8" IMPACT RESISTANT GYPSUM BOARD TYPE "X" BOTH SIDES
- 22 GAUGE STEEL STUDS @ 16" O.C. - REFER TO GENERAL NOTES FOR STUD VARIATIONS
- LINE OF STRUCTURE ABOVE
- 3 1/2" FIBERGLASS SOUND BATTS
- LINE OF FINISH CEILING
- DEEP LEG TRACK, 22 GAUGE
- RUNNER TRACK, 22 GAUGE
- LINE OF FINISH FLOOR
- MOUNT STUD TRACK IN RESILIENT ACOUSTIC SEALANT. SEAL CONSTRUCTION W/ ADDITIONAL RESILIENT SEALANT, TYP. AT TOP AND BOTTOM OF WALL
- TYPE "S" BULGE HEAD SCREWS 8" O.C. @ PERIMETER EDGE OF BOARDS, 16" O.C. IN FIELD OF BOARDS
- 1/2" PLYWOOD SHEATHING

GENERAL NOTES

- A. PROVIDE 5/8" IMPACT RESISTANT GYPSUM WALL BOARD

STEEL STUD VARIATIONS ARE AS FOLLOWS:
*A1" - 3 5/8" STUD FRAMING

CODE ANALYSIS

- I. PROJECT INFORMATION
PROJECT NAME: TTU TRACK AND FIELD
PROJECT ADDRESS: 980 N WILLOW AVE
COOKEVILLE, TN 38501
PROJECT NUMBER: 25007
AGENCIES CONSULTED: STATE OF TENNESSEE
DEPARTMENT OF COMMERCE AND INSURANCE
DAVY CROCKETT TOWER, 12TH FLOOR, LEGAL DIVISION
500 JAMES ROBERTSON PARKWAY
NASHVILLE, TN 37243
CONTACT: STEPHEN, ASSISTANT GENERAL COUNSEL
EMAIL: CI.PROCUREMENT@TN.GOV
RESPONDING FIRE DEPT: 45 EAST BROAD STREET
COOKEVILLE, TN 38501
CONTACT: BENTON YOUNG, FIRE CHIEF
PHONE: 931-520-5255
- II. GOVERNING CODES
STATE OF TENNESSEE
2021 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL FUEL GAS CODE
2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL PLUMBING CODE
2021 INTERNATIONAL PROPERTY MAINTENANCE CODE
2021 INTERNATIONAL FIRE CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
2017 NATIONAL ELECTRICAL CODE
2021 NFPA LIFE SAFETY CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
- III. OCCUPANCY CLASSIFICATION (SECTION 301)
PRIMARY CONSTRUCTION: STORAGE (S) [IBC 311]
- V. AREA AND HEIGHT CALCULATIONS
A. MAX ALLOWABLE HEIGHT: 5.5 FT [IBC 504.3]
MAX ALLOWABLE STORIES: 2 [IBC 504.4]
ACTUAL BUILDING HEIGHT = 12 FT
ACTUAL NUMBER OF STORIES = 1
B. ALLOWABLE BUILDING AREA PER FLOOR: 17,500 SF [IBC 506.2]
ACTUAL AREAS: 897 SF
- VI. CONSTRUCTION TYPE
III-B, NON-SPRINKLERED [IBC TABLE 601]
FIRE RESISTIVE/CONSTRUCTION REQUIREMENTS
STRUCTURAL FRAME: NOT RATED [IBC TABLE 601]
BEARING WALLS - EXTERIOR: 2 HR [IBC TABLE 601]
FLOOR CONSTRUCTION: NOT RATED [IBC TABLE 601]
ROOF CONSTRUCTION: NOT RATED [IBC TABLE 601]
- IX. FIRE PROTECTION SYSTEM
NFPA 13 SPRINKLER SYSTEM [IBC 903.3.1.1]
FIRE ALARM AND DETECTION SYSTEM [IBC 907]
- X. MEANS OF EGRESS
OCCUPANT LOADS
ACCESSORY STORAGE = 300 GROSS
TOTAL OCCUPANTS: 3 [IBC TABLE 1004.5]
MIN. EGRESS WIDTH - DOORS:
32" MIN - SIZE PER OCCUPANT LOAD [IBC 1005.3.2]
COMMON PATH OF EGRESS TRAVEL (GROUP S = 75 FT)
SPACES WITH ONE EXIT (GROUP S = 49 OCCUPANTS) [IBC TABLE 1006.2.1]
[IBC TABLE 1006.2.1]



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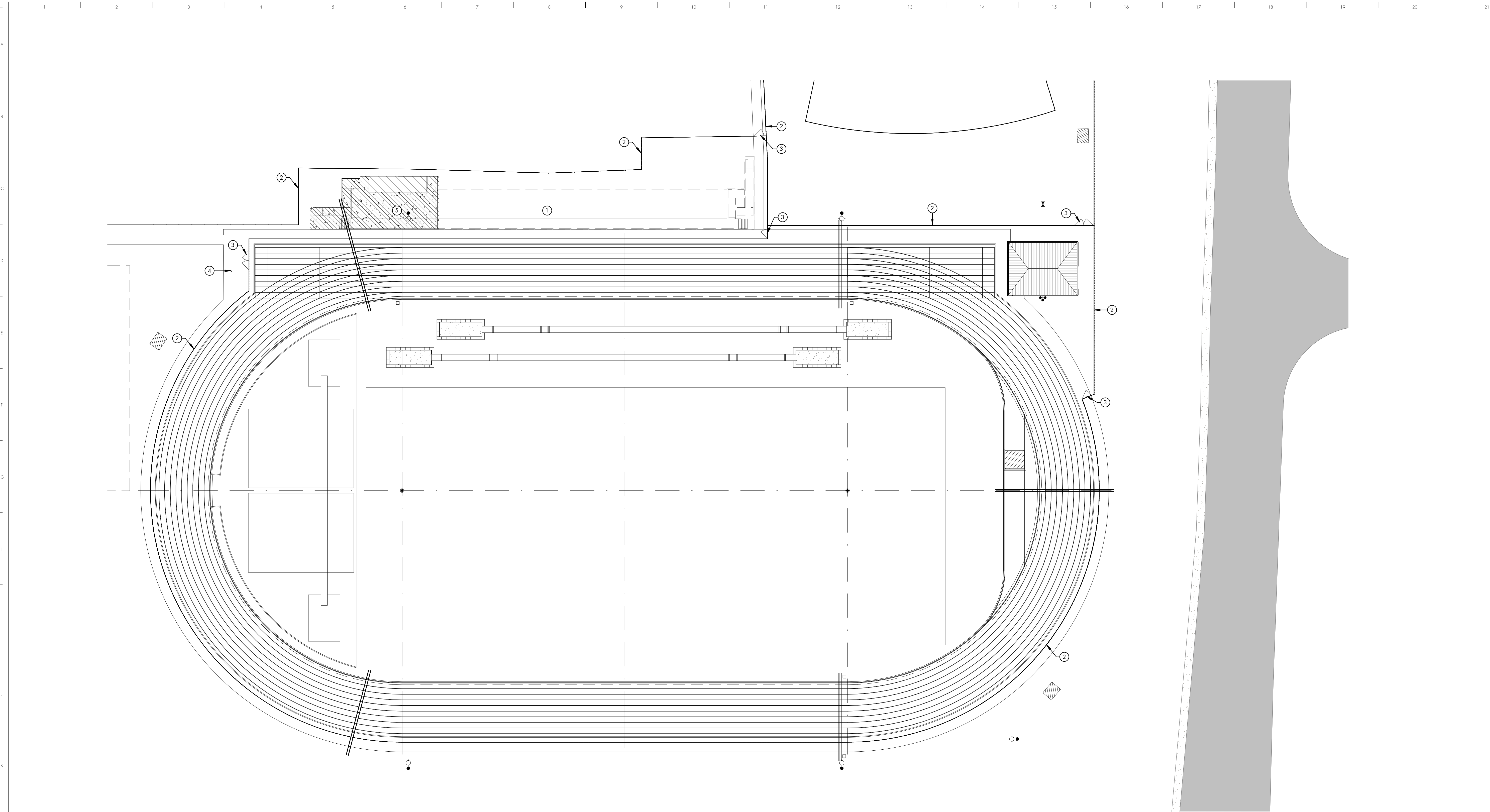
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CODE ANALYSIS
AND OCCUPANCY
INFORMATION

GN.01

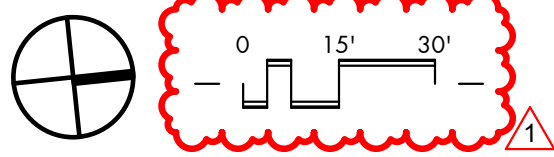
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- 01 SITE PLAN
SITE - FIRST LEVEL

CODED NOTES - SITE PLAN

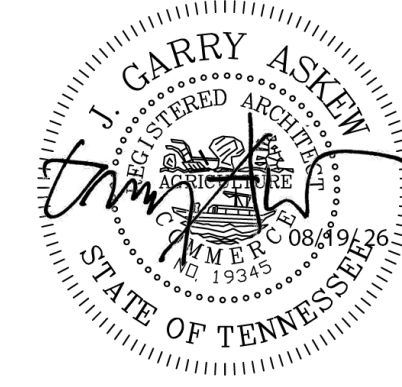
- ① FUTURE BLEACHERS, REF. TO SHEET A1.50
- ② CHAIN LINK FENCE, REF. TO CIVIL DRAWINGS
- ③ PEDESTRIAN/ACCESS GATE, REF. TO CIVIL DRAWINGS
- ④ NEW FLAG POLE W/ LIGHT. REFER TO ELECTRICAL DRAWINGS. COORDINATE LOCATION WITH ARCHITECT AND ENGINEERS BEFORE INSTALLATION
- ⑤ ADD ALTERNATE BLEACHERS AND PRESS BOX, REF. TO SHEET A1.50



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615
T 7 2 6 . 0 0 4 7
F 7 2 6 . 4 8 9 1
615

1615
sixteenth
avenue south
nashville
tennessee
37212



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ARCHITECTURAL
SITE PLAN

AS.01

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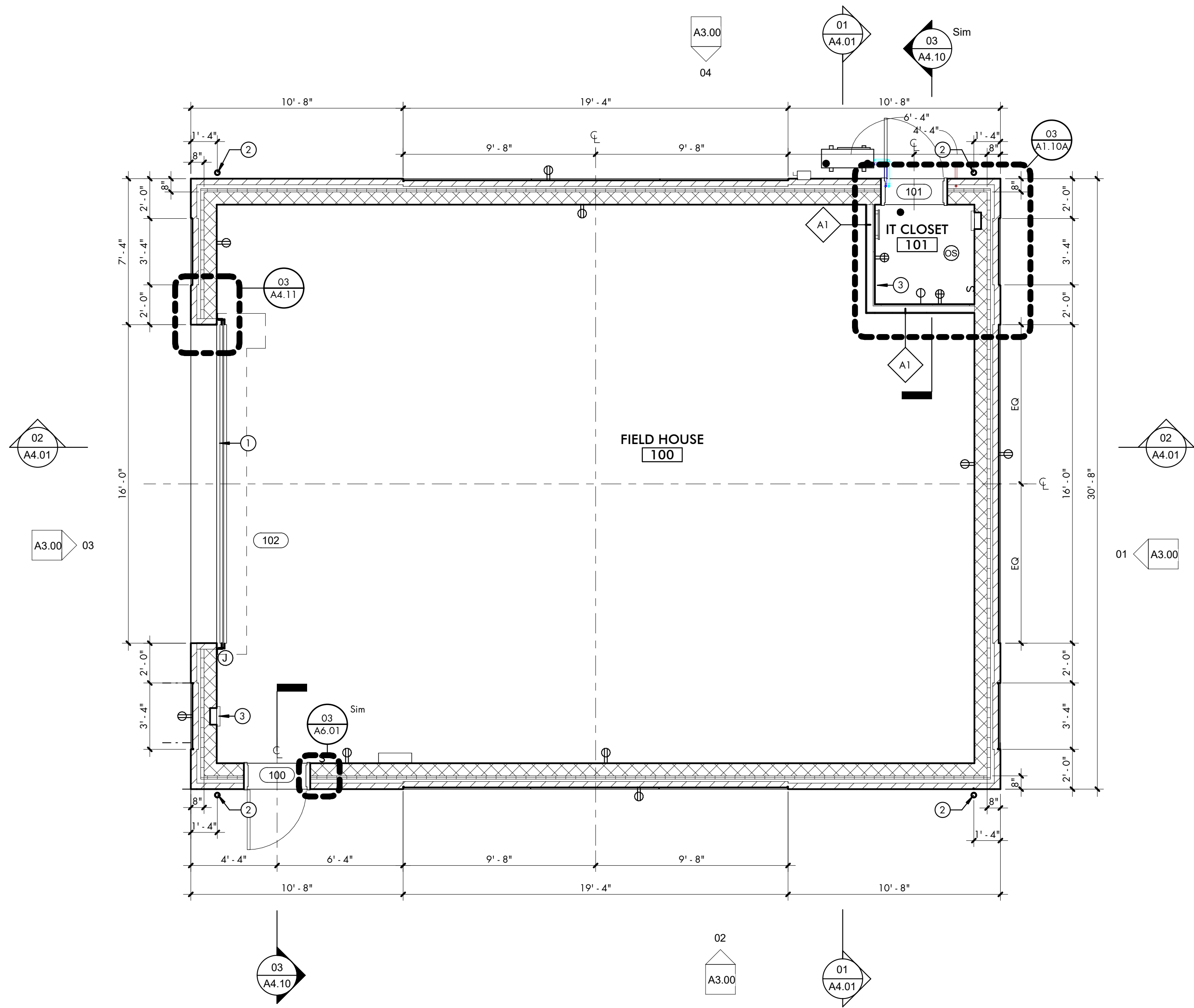
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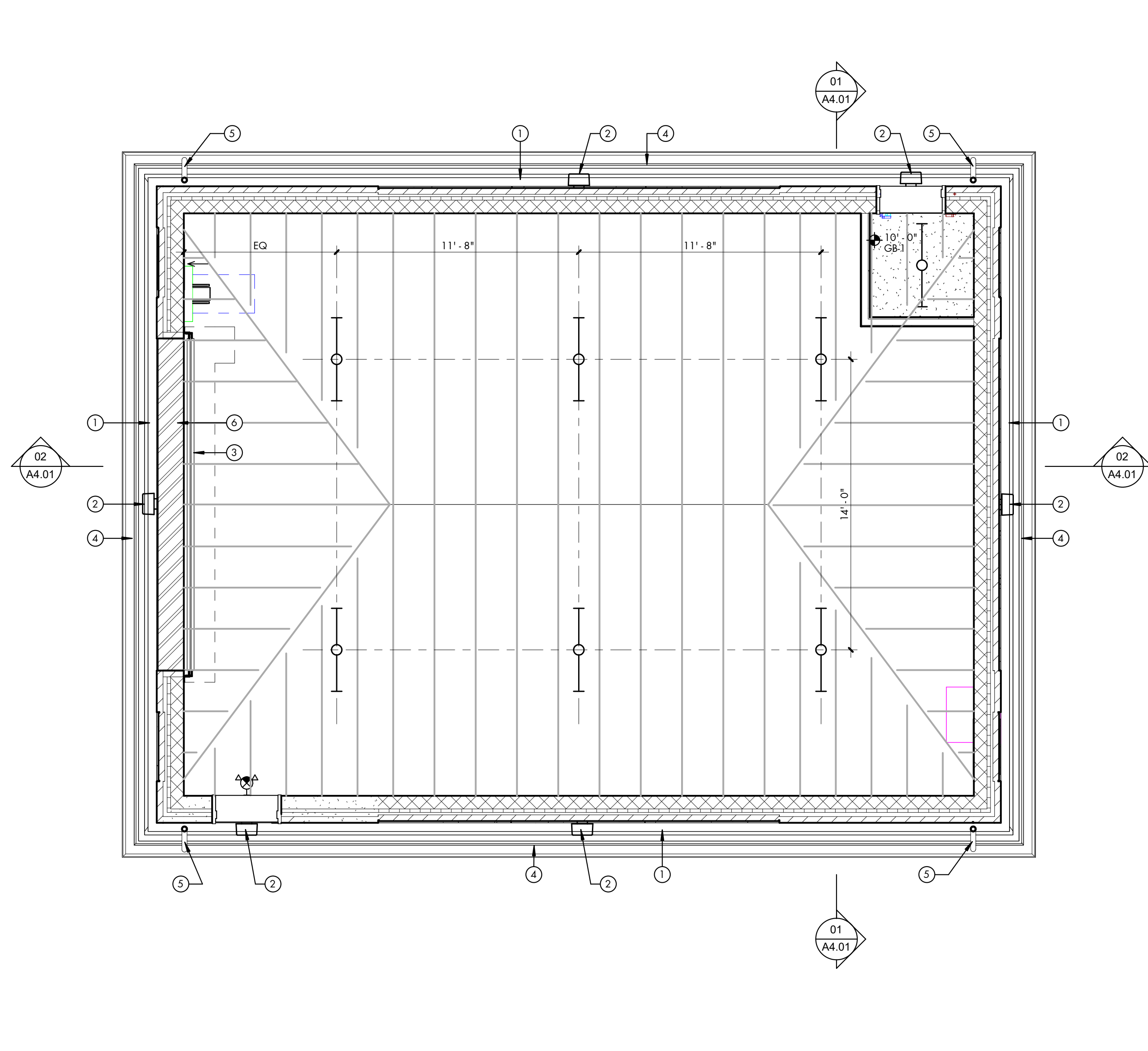
CALLOUT PLAN &
RCP

A1.10A

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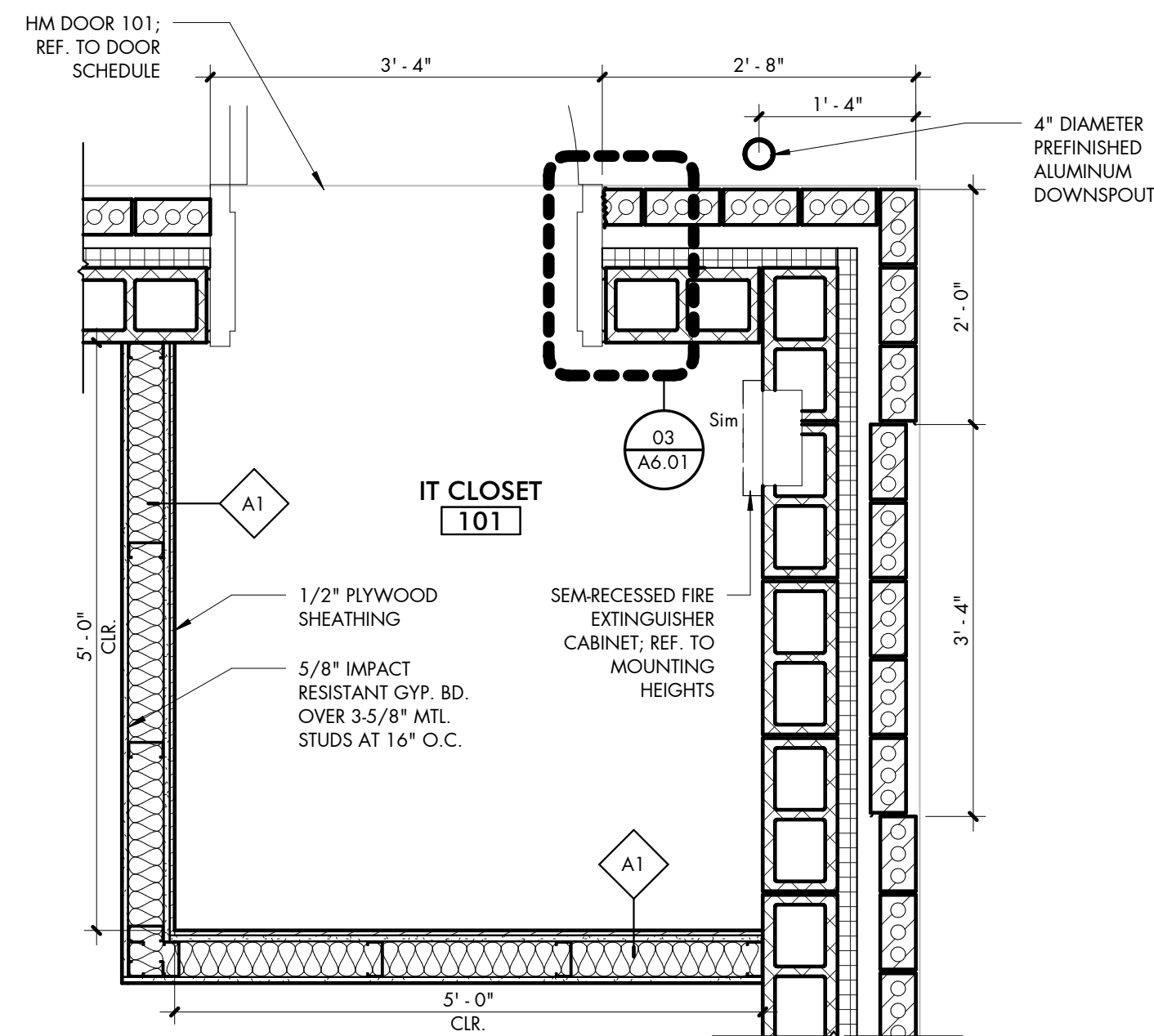
- 01 FLOOR PLAN
CALLOUT



- 02 REFLECTED CEILING PLAN
REFLECTED CEILING PLAN

FLOOR PLAN CODED NOTES

- ① INSULATED COILING OVERHEAD DOOR
- ② 4" DIAMETER PREFINISHED ALUMINUM DOWNSPOUT
- ③ SURFACE MOUNTED FIRE EXTINGUISHER CABINET, REFER TO SPECIFICATIONS AND MOUNTING HEIGHTS



- 03 PLAN DETAIL
IT CLOSET PLAN

REFLECTED CEILING PLAN CODED NOTES

- ① HARDIE BOARD SOFFIT W/ FIBER CEMENT TRIM
- ② SCONCE LIGHT, REF. TO SHEET E0.00
- ③ INSULATED COILING OVERHEAD DOOR
- ④ 6" PREFINISHED ALUMINUM BOX GUTTER SYSTEM
- ⑤ 4" DIAMETER PREFINISHED ALUMINUM DOWNSPOUT
- ⑥ STEEL PLATE LINTEL

CEILING SYMBOL LEGEND

- 4" SURFACE MOUNTED LINEAR UTILITY LED FIXTURE
- EXTERIOR WALL MOUNTED SCONCE FIXTURE

*NOTE: PROVIDE MANUFACTURER AND CATALOG NUMBER FOR ALL PRICED FIXTURES.

CEILING LEGEND

- EXP [EXPOSED CEILING]
EXPOSED STRUCTURE ABOVE TO BE PAINTED; RE:
INT. FINISH SCHEDULE FOR COLOR
- GB-1 [GYPSUM BOARD CEILING]
5/8" GYP. BD. CEILING ON METAL FRAMING,
RE: SMOOTH FINISH
COLOR: WHITE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

A

B

C

D

E

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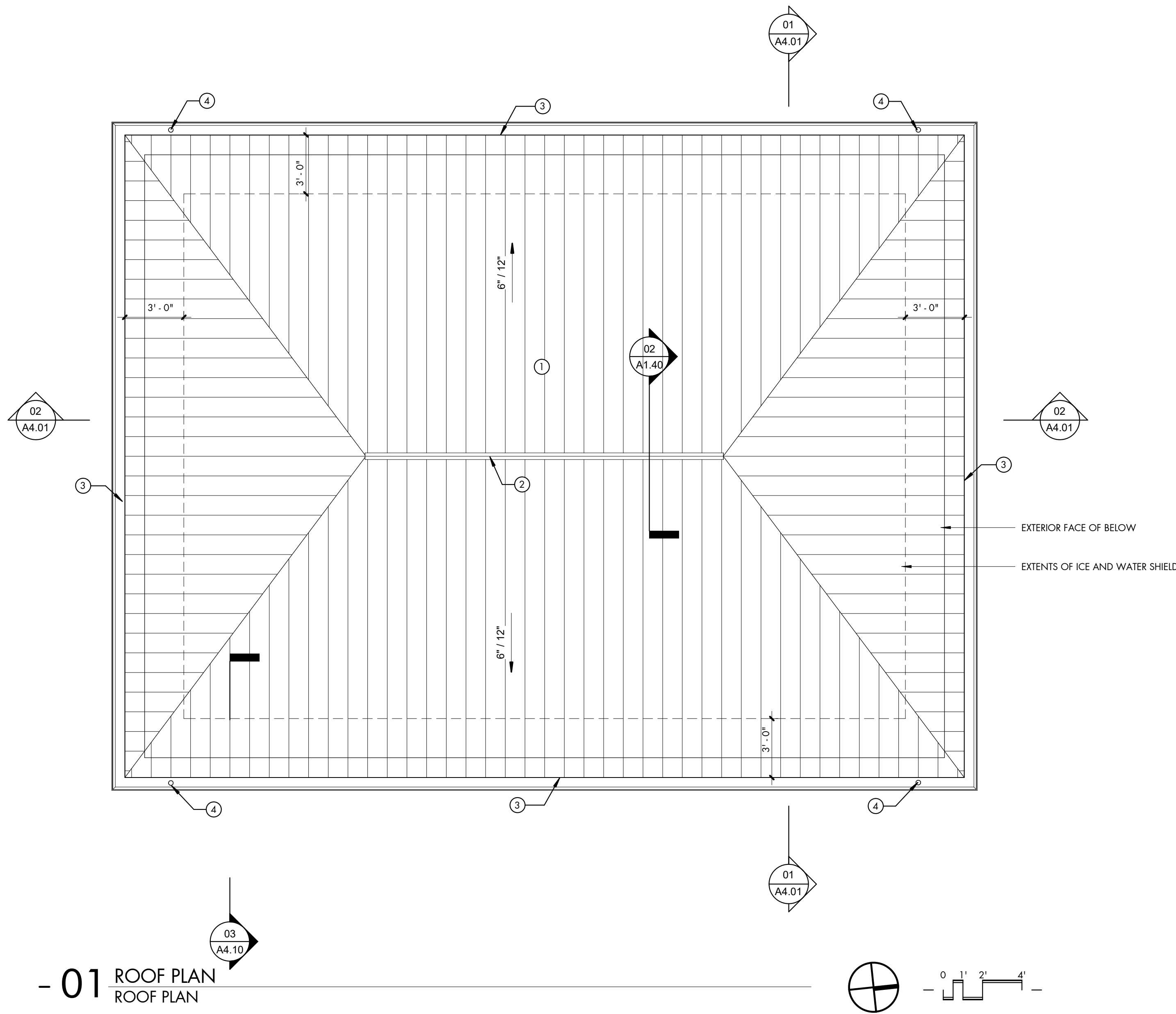
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

ROOF PLAN CODED NOTES

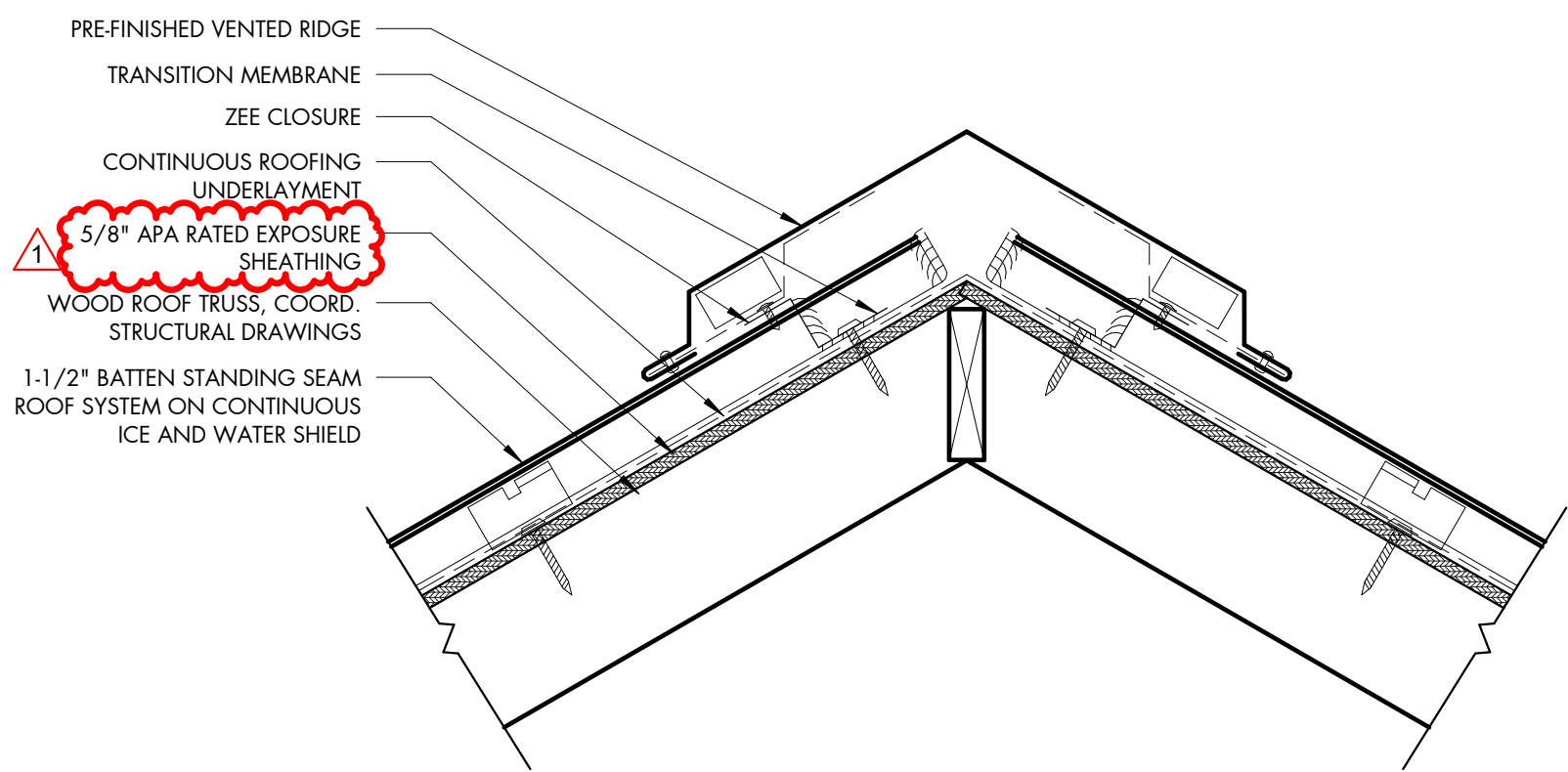
- ① 1-1/2" BATTEN STANDING SEAM ROOF SYSTEM ON 3/4" OSB DECKING - COLOR TO BE SLATE GRAY
② RIDGE VENT - REFER TO DETAIL
③ 6" PREFINISHED ALUMINUM BOX GUTTER SYSTEM
④ 4" DIAMETER PREFINISHED ALUMINIUM DOWNSPOUT

GENERAL NOTES

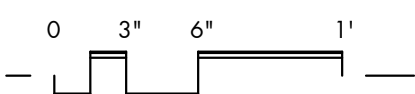
1. CONTRACTOR TO PROVIDE 20 YEAR WARRANTY FOR ALL ROOFING SYSTEMS.
2. OVERLAP FLASHING A MINIMUM OF 2" WITH A CONTINUOUS BEAD OF SEALANT BETWEEN OVERLAPPING PARTS.



- 01 ROOF PLAN
ROOF PLAN

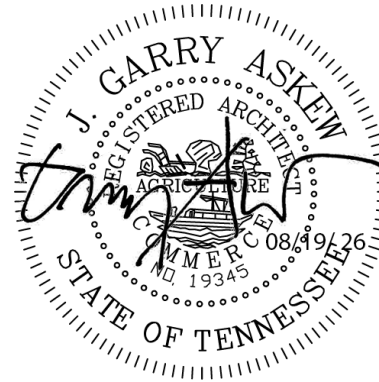


- 02 SECTION DETAIL
RIDGE DETAIL



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615
T 7 2 6 . 0 0 4 7
F 7 2 6 . 4 8 9 1
615
1615
sixteenth
avenue south
nashville
tennessee
37212



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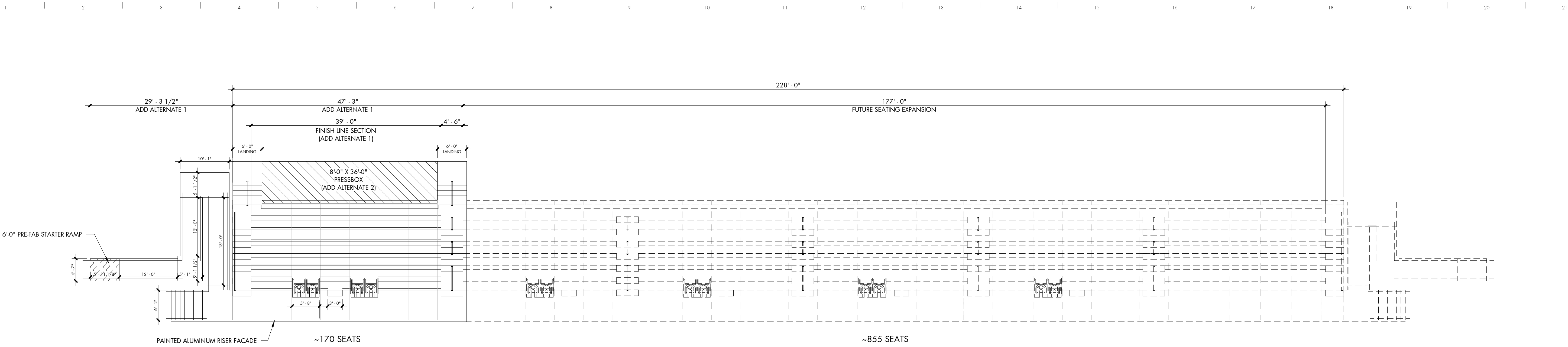
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ROOF PLAN &
DETAILS

A1.40

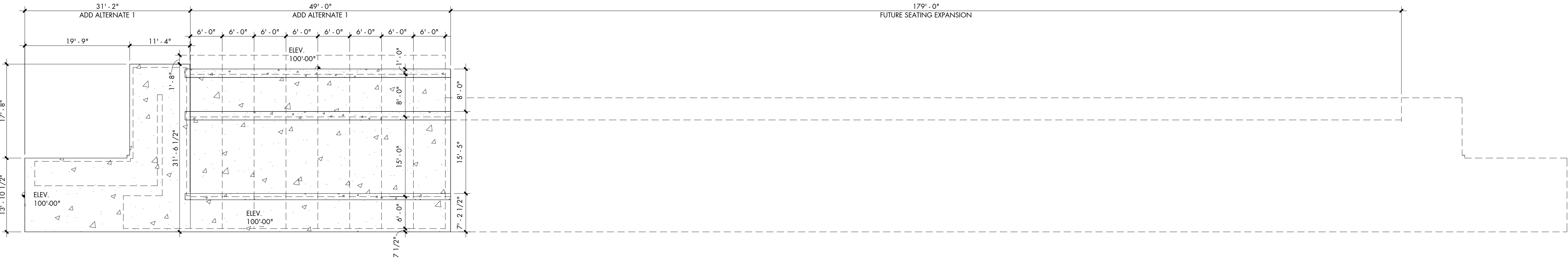
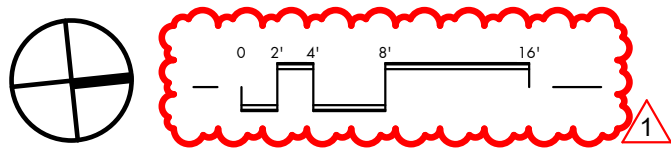
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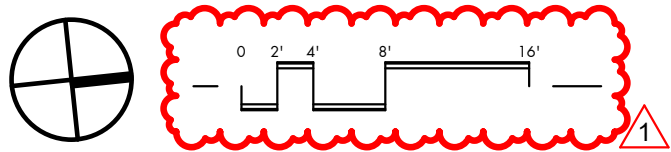
~170	SEATS IN ADD ALTERNATE 1 (2 WHEELCHAIR SPACES)
855	SEATS IN FUTURE EXPANSION (8 WHEELCHAIR SPACES)
1025	TOTAL SEATING CAPACITY

819	TOTAL NET 18" SEATS
196	TOTAL NET 18" SEATS W/ BACKRESTS
10	TOTAL NET 33" WHEELCHAIR SPACES
1025	TOTAL SEATING CAPACITY

- 01 FLOOR PLAN SEATING LAYOUT



- 02 FLOOR PLAN FOOTING LAYOUT



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ENLARGED
BLEACHER PLAN -
ADD ALTERNATE

A1.50

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OVERALL EXTERIOR
ELEVATIONS

A3.00

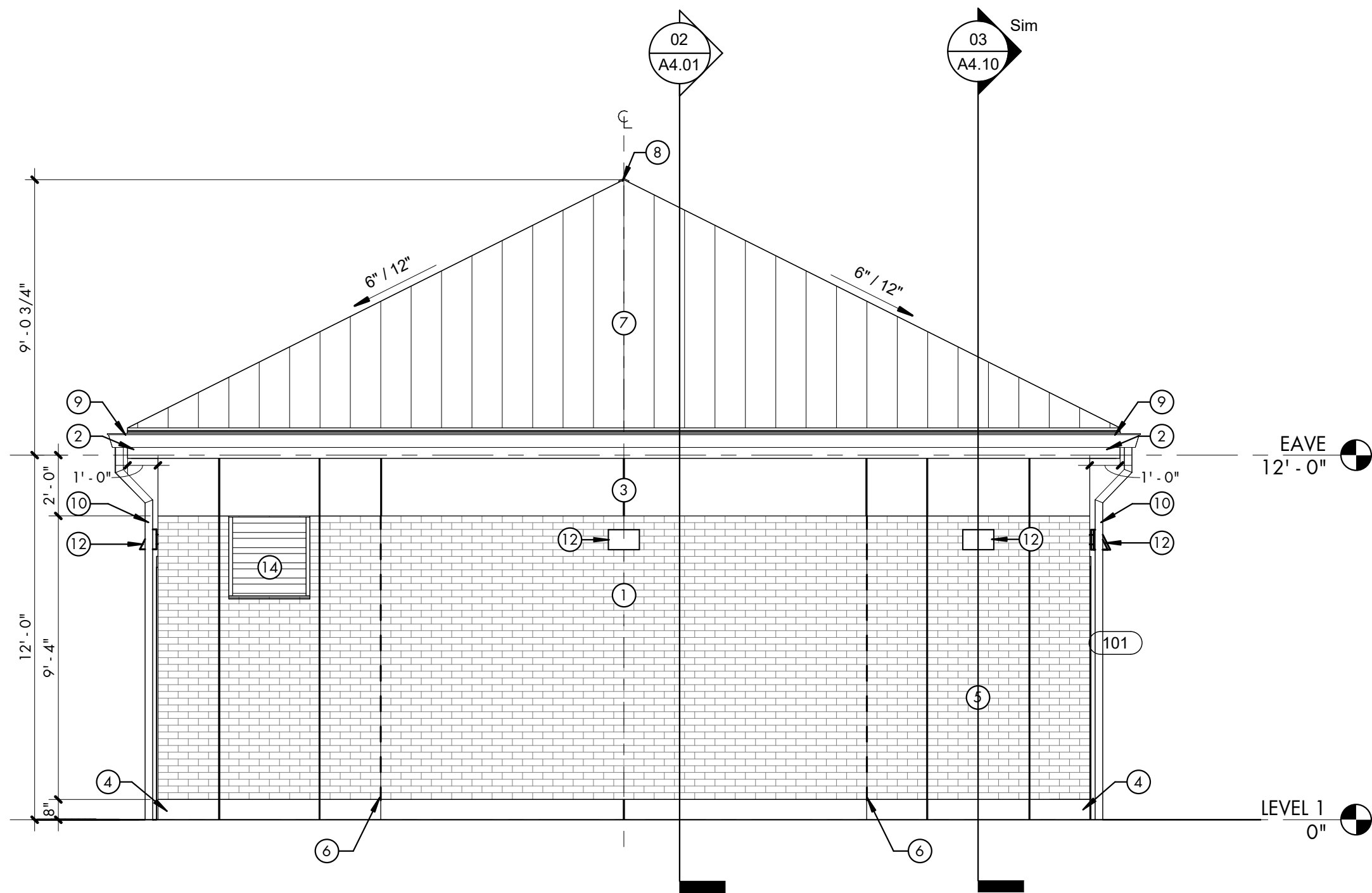
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EXTERIOR ELEVATION CODED NOTES

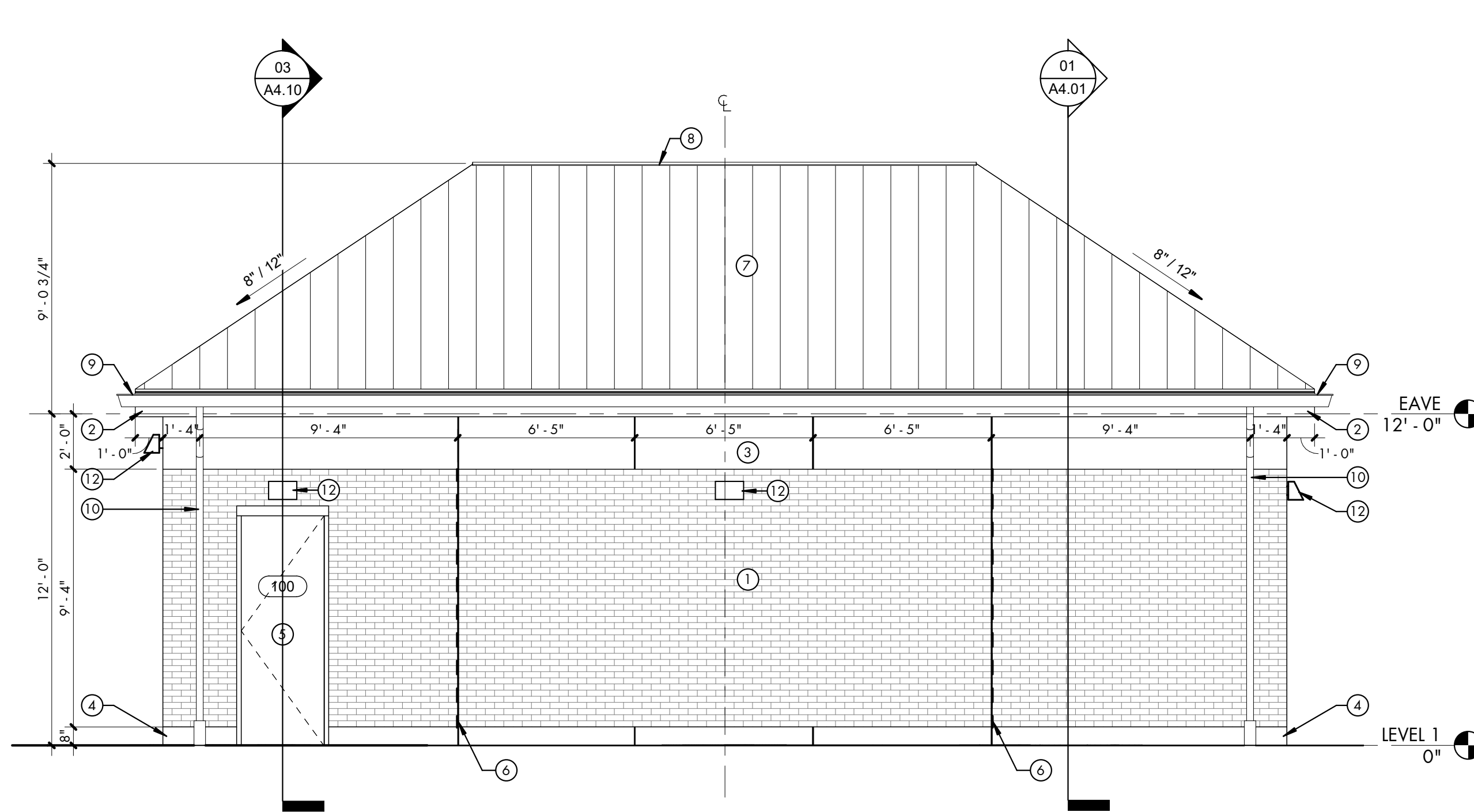
- COORDINATE ALL EXTERIOR MASONRY PENETRATIONS WITH BRICK MODULE. CENTER ON WALL U.N.O.
- ALL MATERIALS ARE TO MATCH EXISTING MATERIALS USED ON CAMPUS; COLORS TO BE SELECTED BY OWNER.

EXTERIOR ELEVATION CODED NOTES

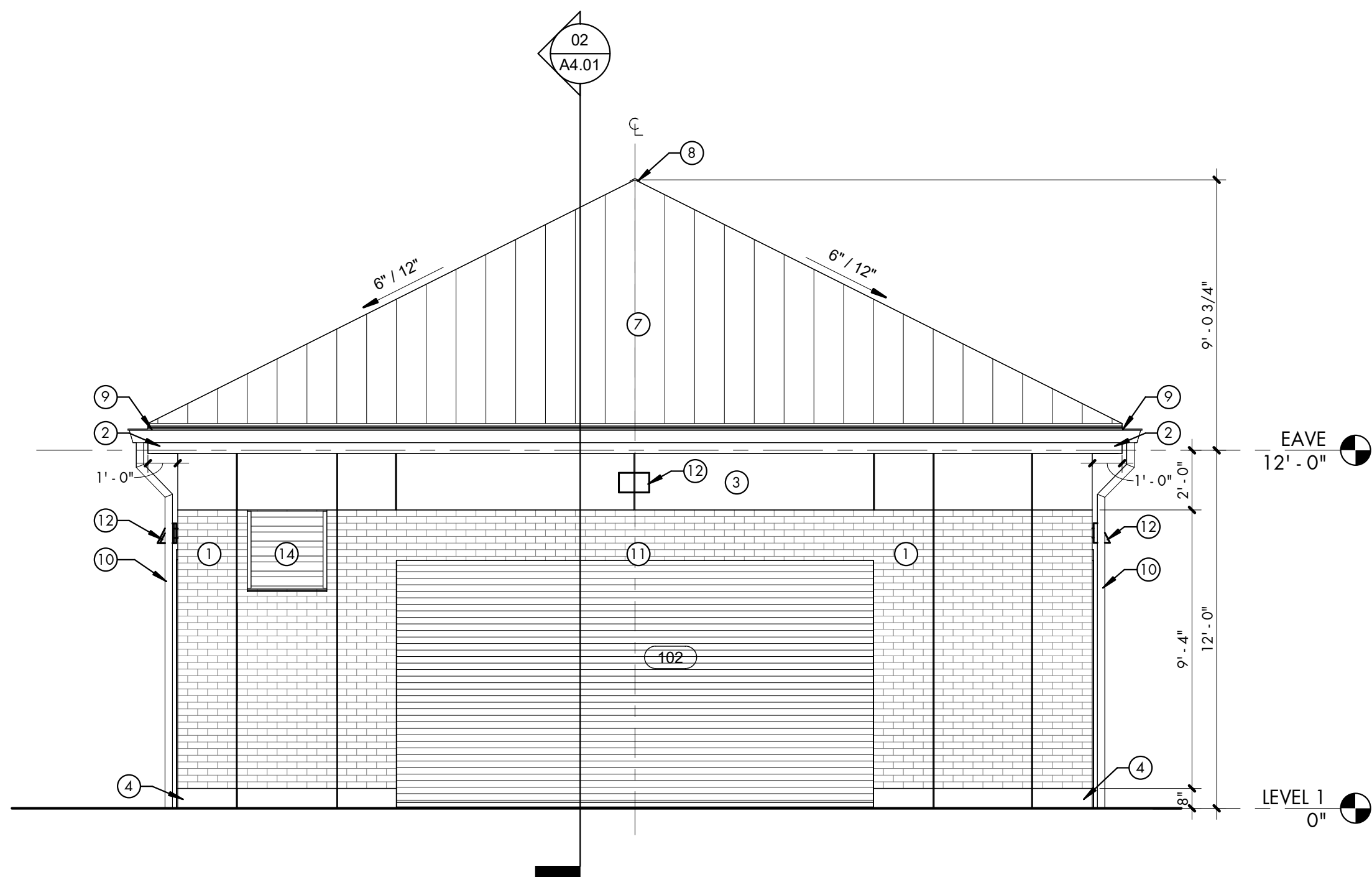
- EXTERIOR BRICK VENEER - MERIDIAN BRICK COMPANY, FULL RANGE, SAND FACE, FACE SET ACME M/S WINDSOR PARK VELOUR
- FASCIA TRIM BOARD, REFER TO SECTION DETAILS
- CAST STONE CORNICE
- CAST STONE BASE, REFER TO SECTION DETAILS
- HM DOOR, REFER TO DOOR SCHEDULE
- MASONRY CONTROL JOINT
- 1-1/2" BATTEN STANDING SEAM ROOF SYSTEM ON 3/4" OSB DECKING - COLOR TO BE SLATE GRAY
- RIDGE VENT
- 6" PREFINISHED ALUMINUM BOX GUTTER SYSTEM
- 4" DIAMETER PREFINISHED ALUMINUM DOWNSPOUT
- INSULATED COILING OVERHEAD DOOR
- WALL MOUNTED SCONCE FIXTURE, REF. TO RCP
- FENCE, COORD. CIVIL DRAWINGS
- LOUVER; COORD. W/ MECHANICAL



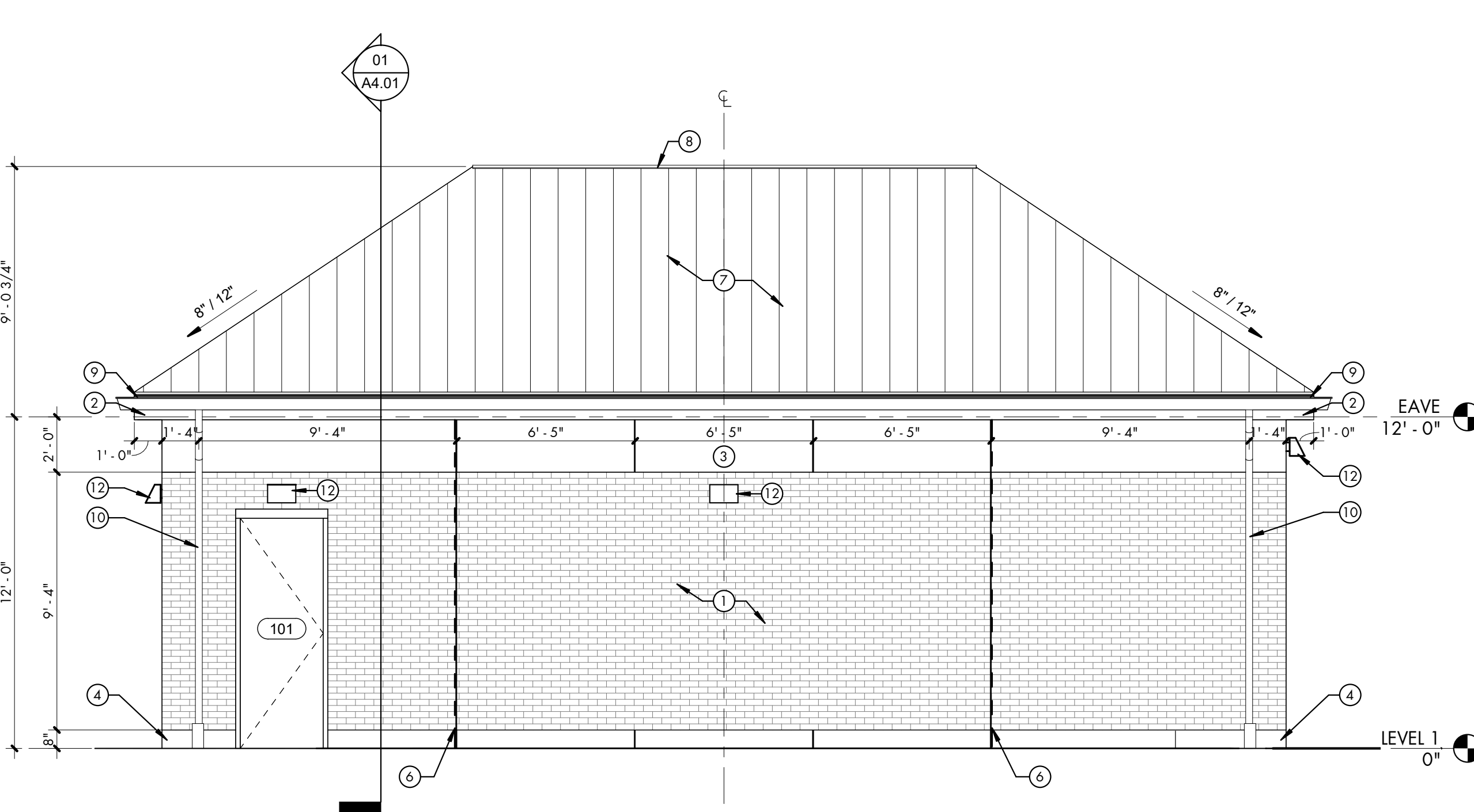
- 01 BUILDING ELEVATION
NORTH



- 02 BUILDING ELEVATION
EAST



- 03 BUILDING ELEVATION
SOUTH



- 04 BUILDING ELEVATION
WEST



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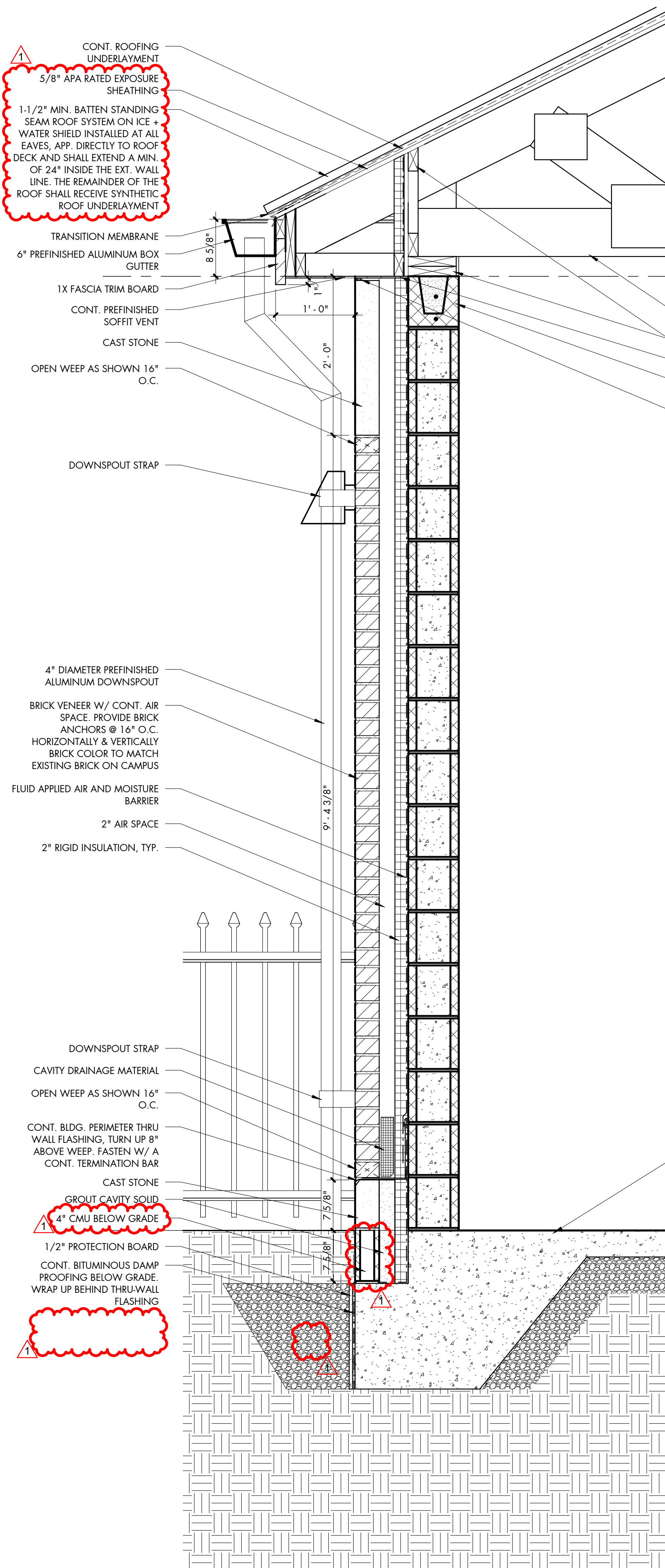
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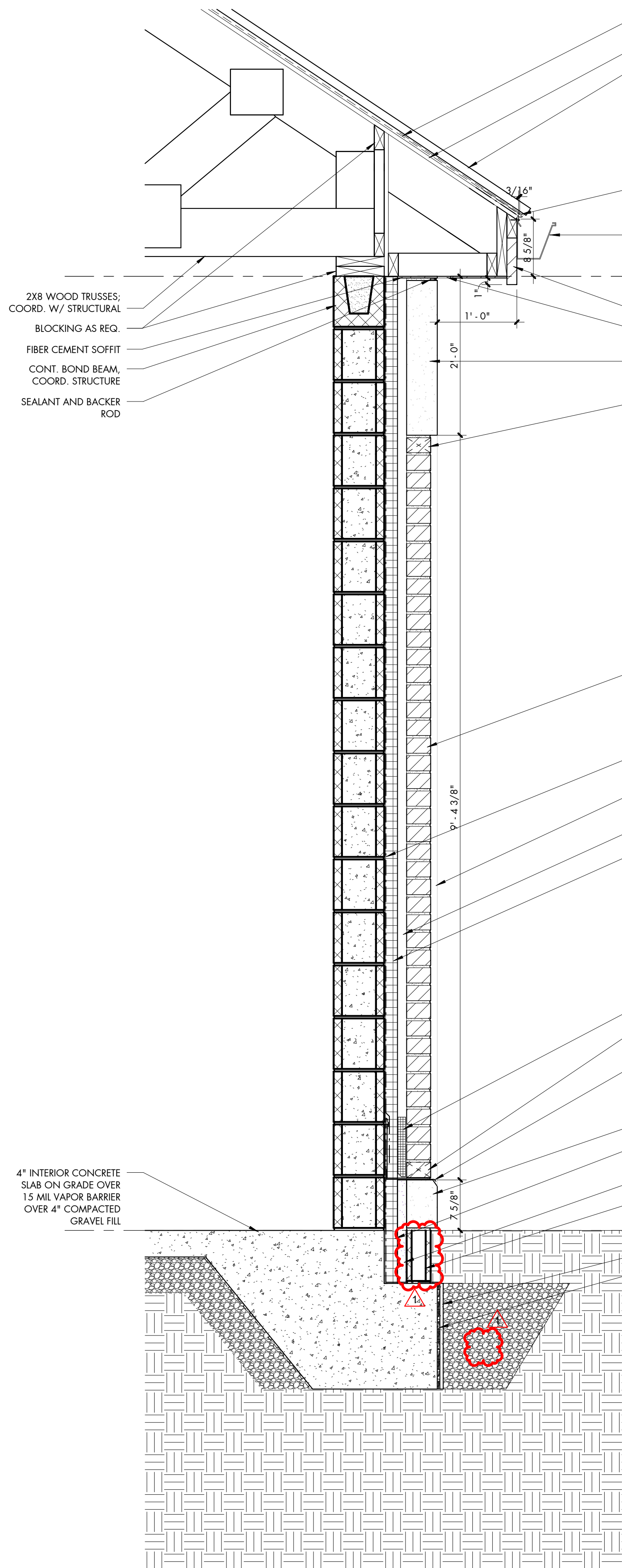
WALL SECTIONS

A4.10

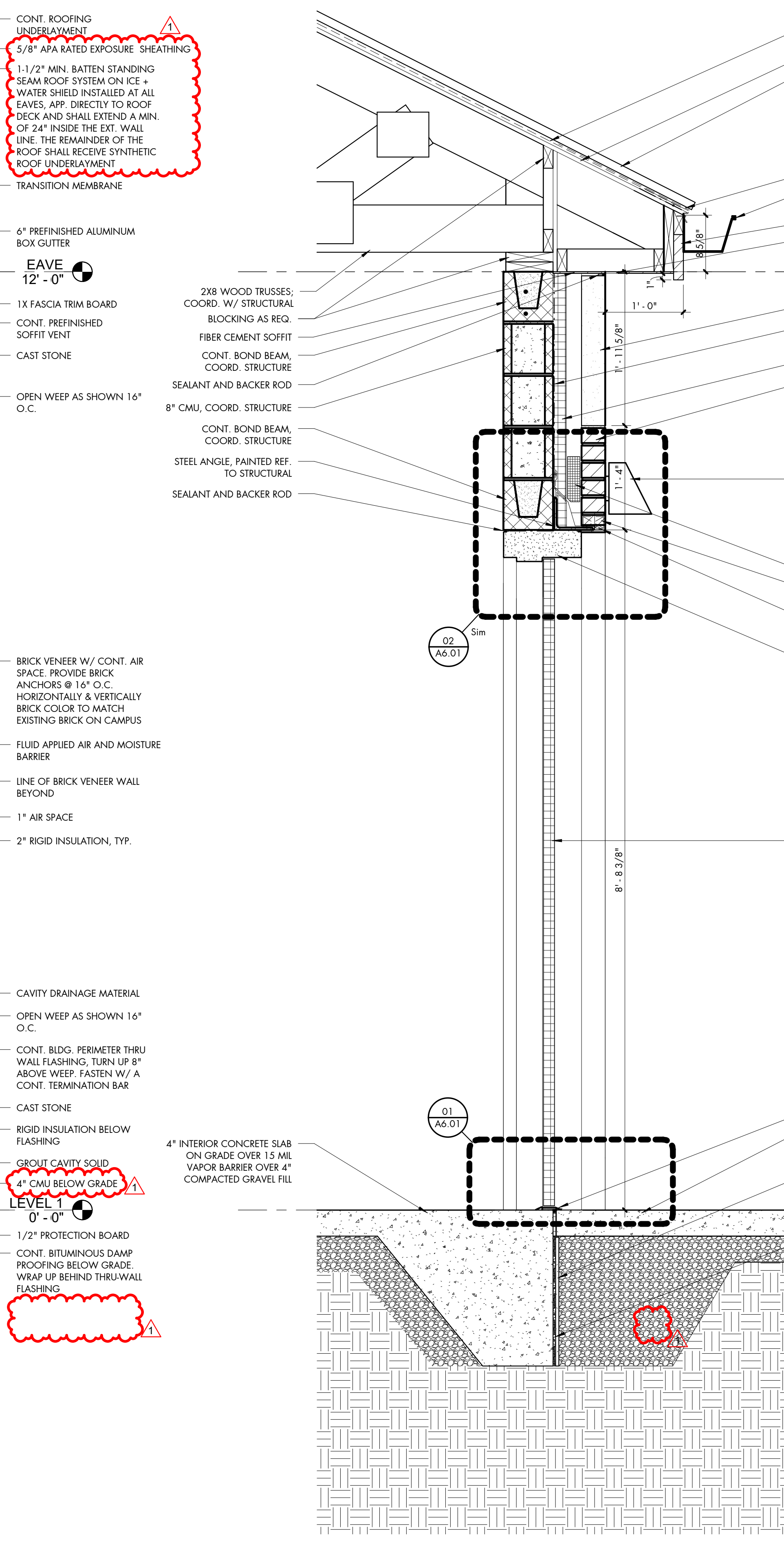
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- 01 WALL SECTION
@ TYP. BRICK WALL

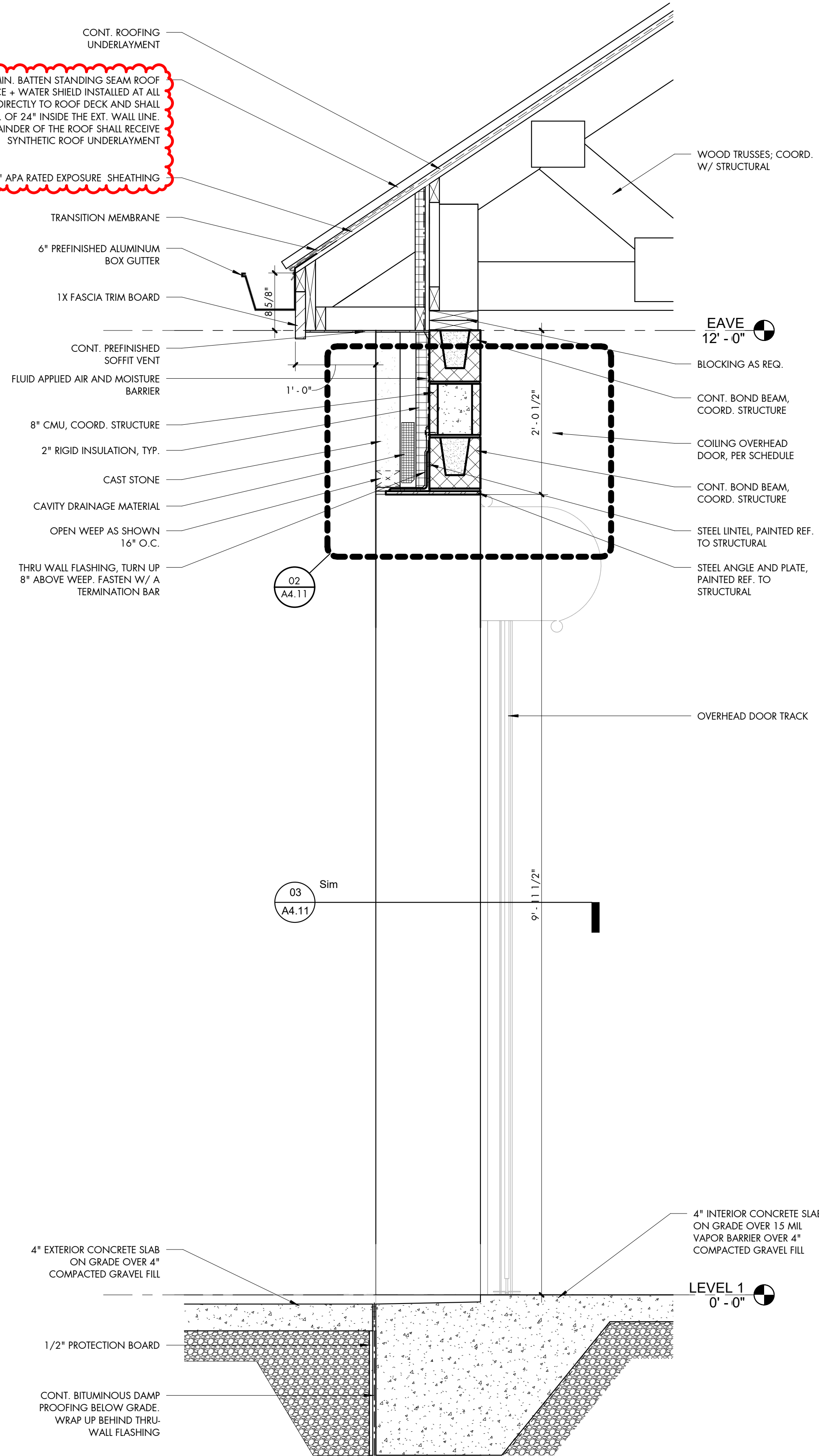


- 02 WALL SECTION
@ BRICK INSET

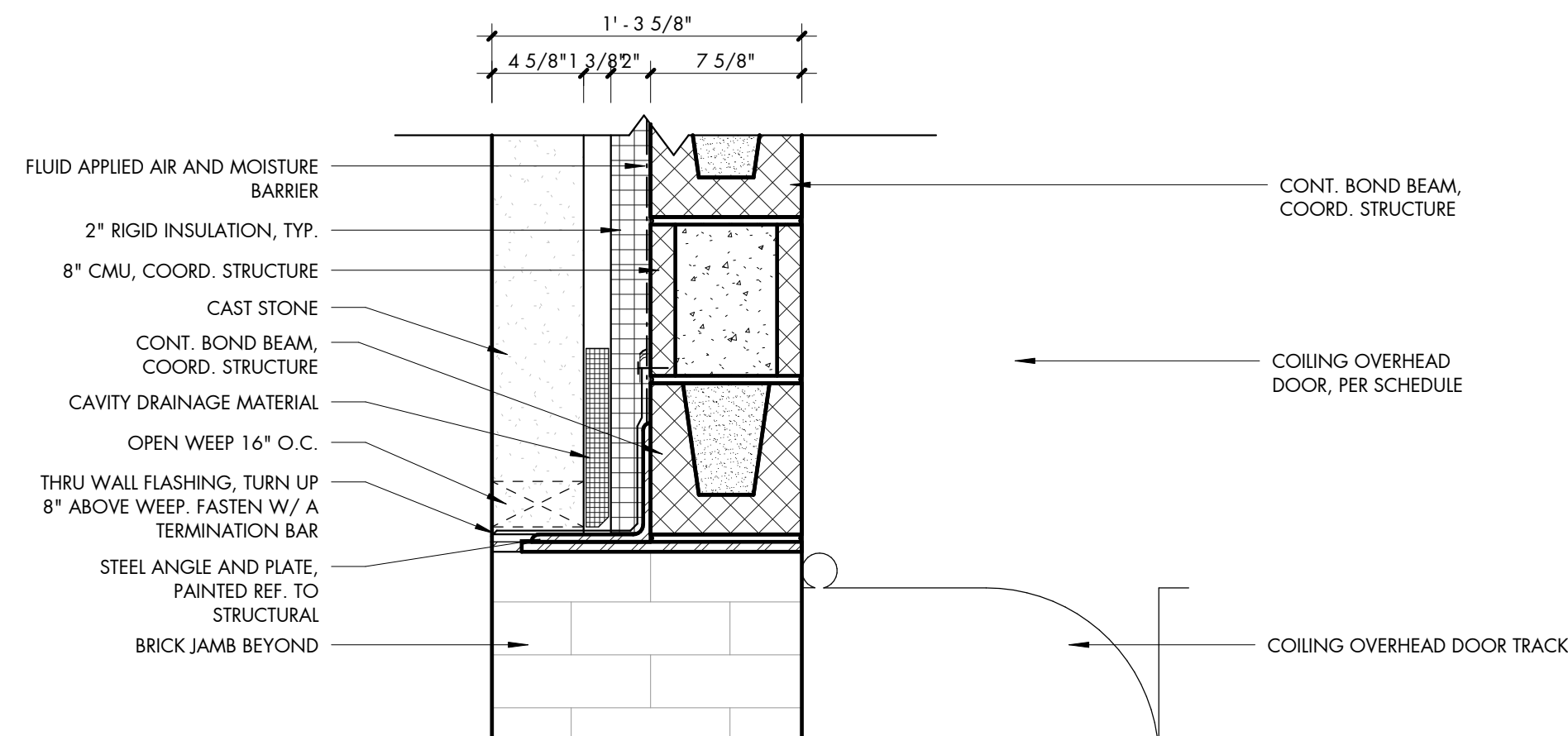


- 03 WALL SECTION
@ MAN DOOR

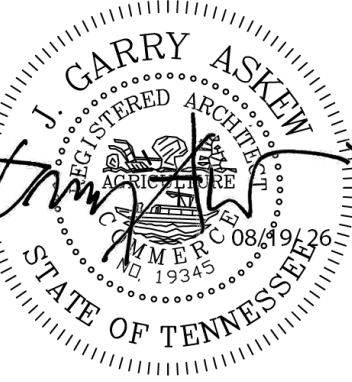
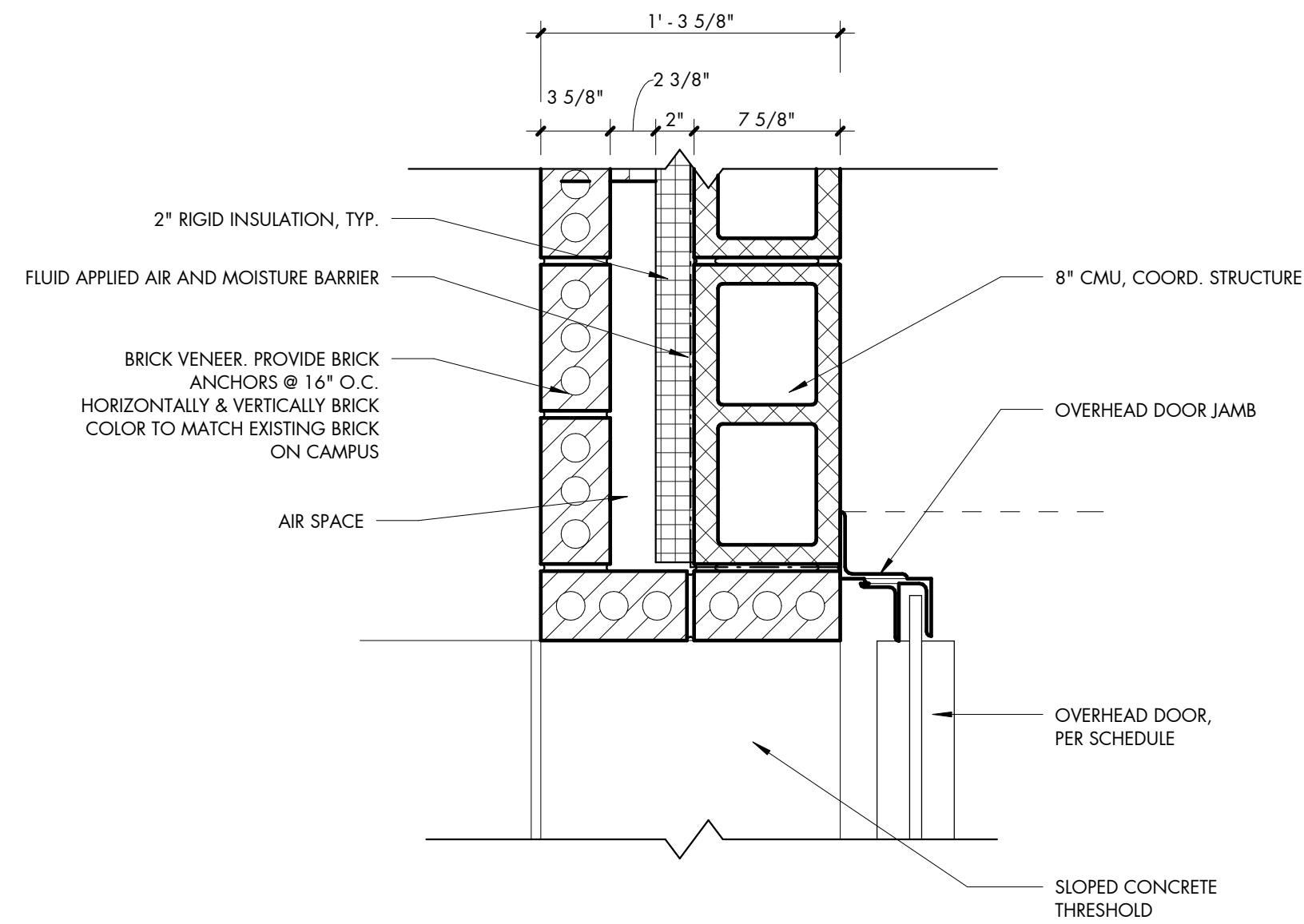
- 01 WALL SECTION
@ OVERHEAD DOOR



- 02 SECTION DETAIL
HEAD DETAIL AT OVERHEAD DOOR



- 03 SECTION DETAIL
JAMB DETAIL AT OVERHEAD DOOR



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WALL SECTIONS &
SECTION DETAILS

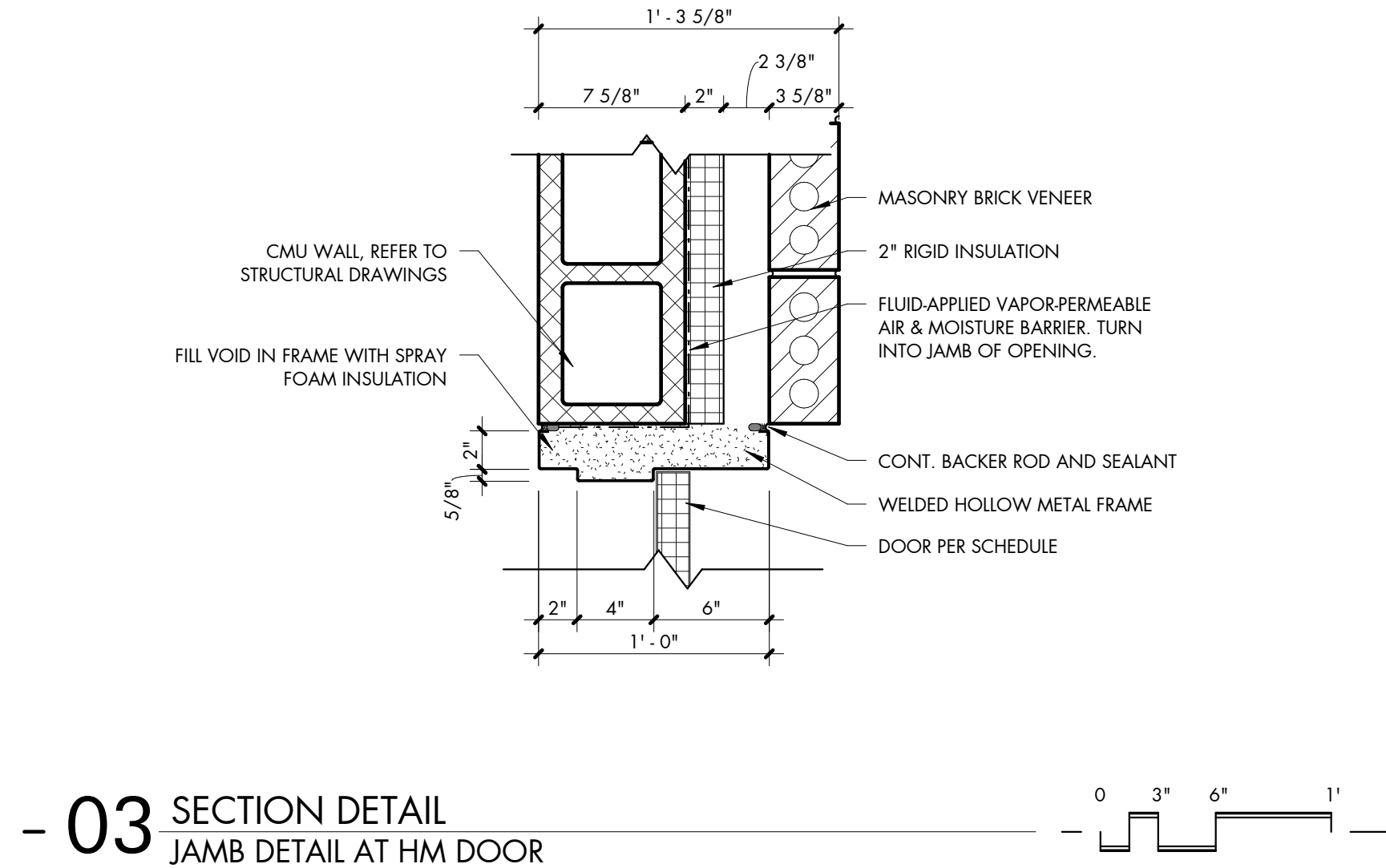
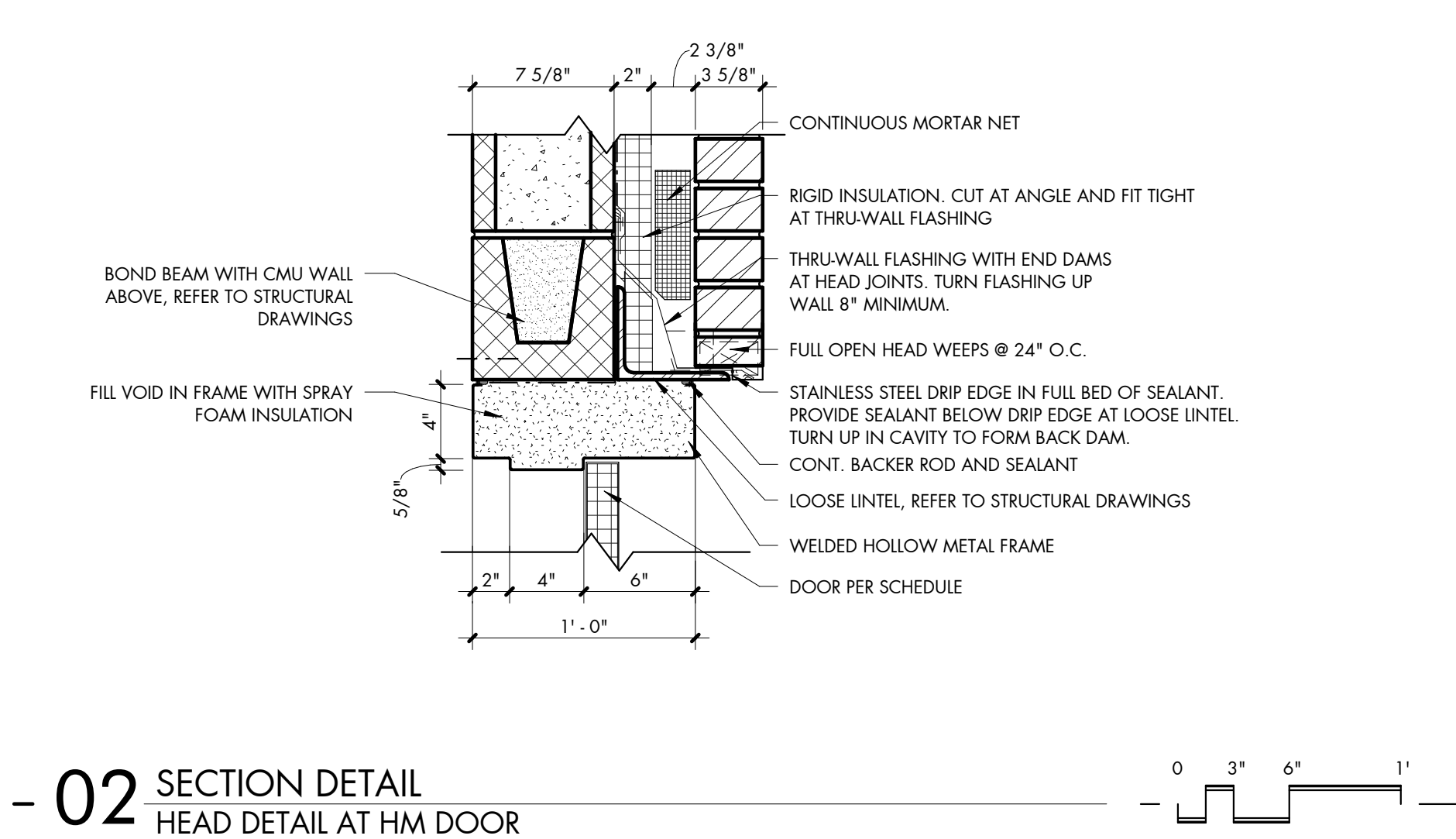
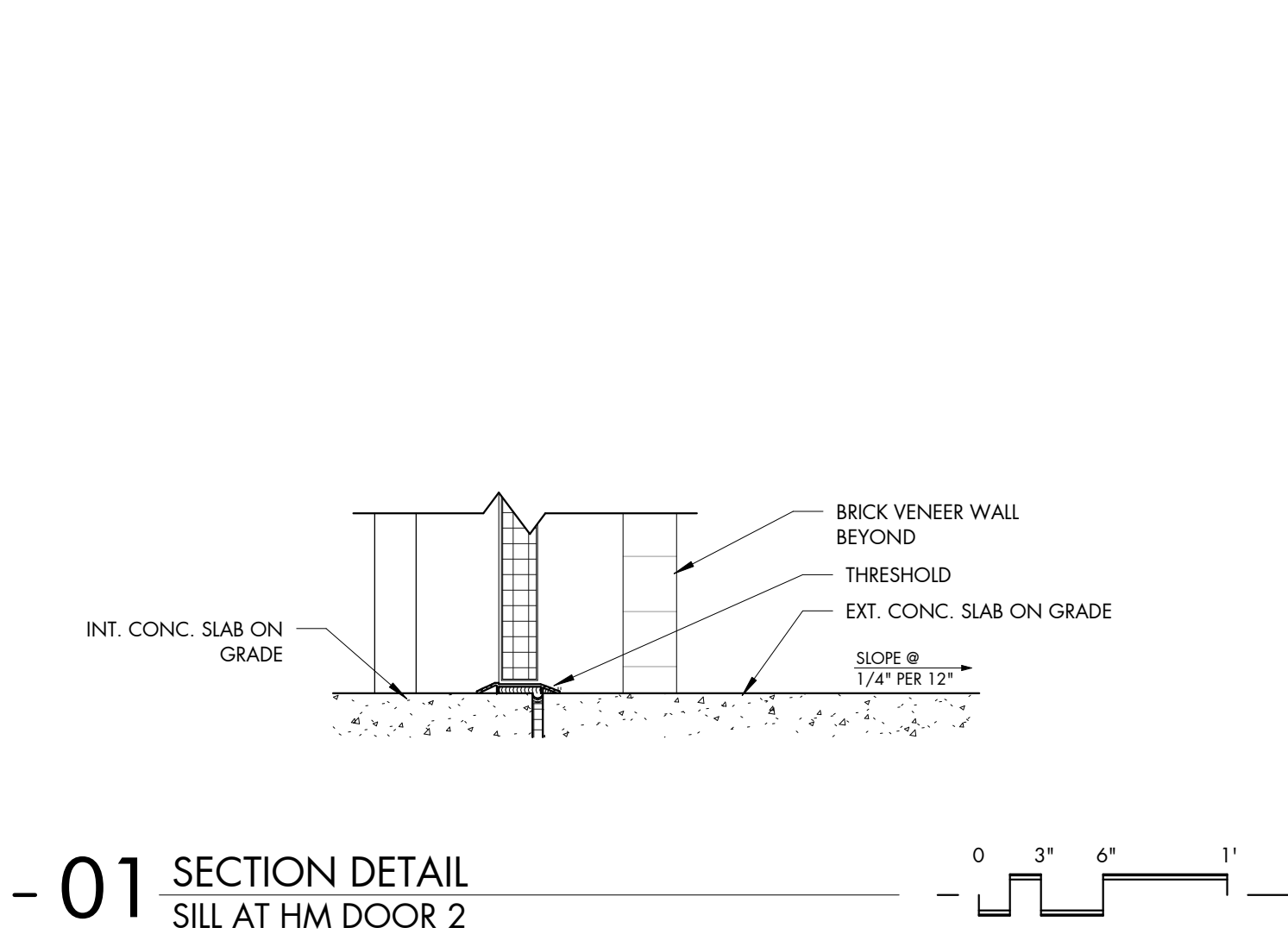
A4.11

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DOOR SCHEDULE																
DOOR NO.	ROOM NAME	TYPE	NO. LEAFS	DOOR		THICKNESS	MATERIAL	UNDER CUT	GLASS TYPE	HARDWARE	TYPE	MATERIAL	FRAME			REMARKS
				OPENING SIZE									DETAIL			
				W	H								HEAD DETAIL	SILL DETAIL	JAMB DETAIL	
LEVEL 1																
100	FIELD HOUSE	A		3' - 0"	8' - 4"	1 3/4"	HM	3/4"	-	SEE REMARKS	F-1	HM	02	01	03	PAIR AND A HALF BUTT HINGES CYLINDRICAL LOCK W/ BEST 7-PINS LATCH PROTECTOR, DRIP STRIP, WEATHERSTRIPPING, THRESHOLD WALL MOUNTED DOOR STOP
101	IT CLOSET	A		3' - 0"	8' - 4"	1 3/4"	HM		-	SEE REMARKS	F-1	HM	02	01	03	PAIR AND A HALF BUTT HINGES CYLINDRICAL LOCK W/ BEST 7-PINS LATCH PROTECTOR, DRIP STRIP, WEATHERSTRIPPING, THRESHOLD WALL MOUNTED DOOR STOP
102	FIELD HOUSE	B		16' - 0"	10' - 0"		ALUM		-							



ABBREVIATIONS

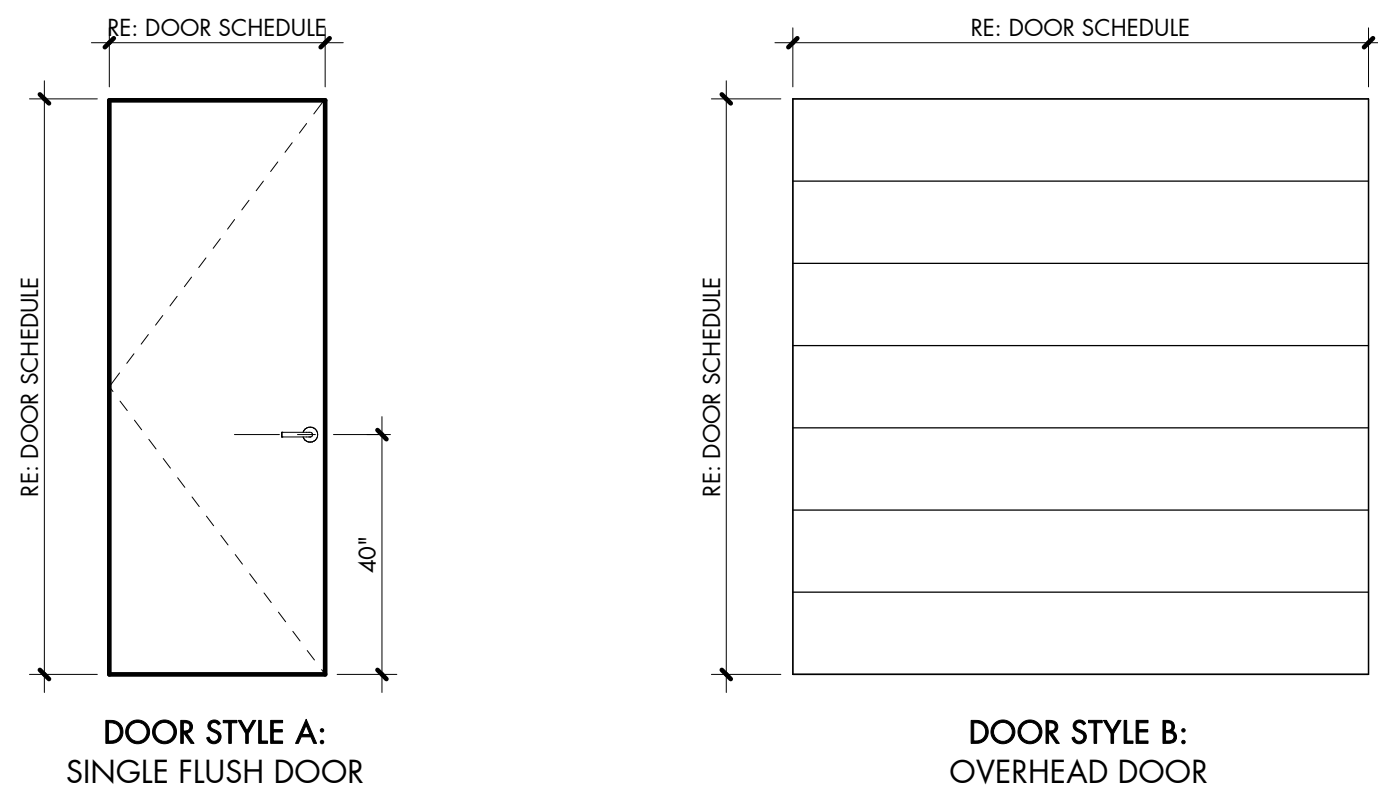
ALUM: ALUMINUM
GL: GLASS
SF: STOREFRONT
SS: STAINLESS STEEL
HM: HOLLOW METAL
SC: SOLID CORE
I: TEMPERED GLAZING
AD: ANODIZED
STL: STEEL

DOOR SCHEDULE GENERAL NOTES

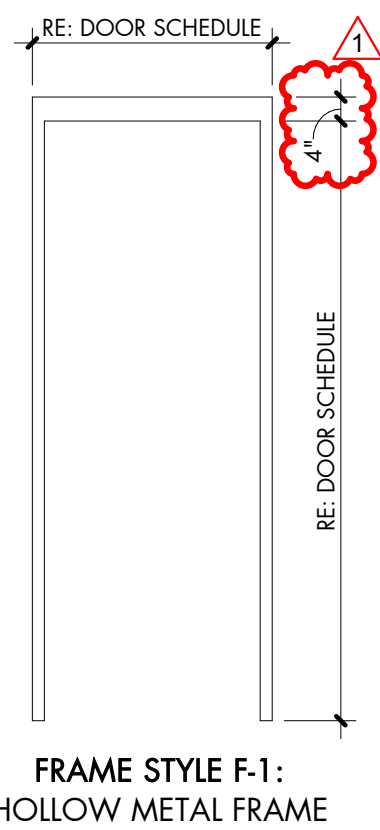
- DOOR THICKNESS SHALL BE 1 3/4" UNLESS NOTED OTHERWISE.
- THE MAXIMUM DOOR OPENING FORCE FOR PUSHING OR PULLING OPEN AN INTERIOR HINGED DOOR OR SLIDING OR FOLDING DOORS SHALL BE 5 LBF [22.2N]. SURFACE APPLIED HARDWARE SHALL BE APPLIED TO THE FACE OF DOORS WITHOUT REMOVING MATERIAL FROM THE DOOR OTHER THAN A MAXIMUM OF 1" DIAMETER HOLES TO ACCOMMODATE OPERATIONAL ELEMENTS, WITH THE EXCEPTION OF CYLINDER HOLES, WHICH SHALL BE MADE AS SMALL AS POSSIBLE. SIGNAGE ON RATED DOORS SHALL NOT EXCEED 5% OF THE AREA OF THE FACE OF THE DOOR. THEY SHALL BE ATTACHED USING ADHESIVE - SCREWS OR NAILS ARE NOT PERMITTED.
- KNURL: ALL KNOBS OR LEVERS TO MECHANICAL ROOMS, ELECTRICAL ROOMS OR CLOSETS AND OTHER HAZARDOUS AREAS THAT MAY PROVE DANGEROUS TO THE VISUALLY IMPAIRED.
- ALL DOORS TO BE POSITIVE LATCHING, UNLESS NOTED OTHERWISE [EXCEPT MULTI-STALL RESTROOM DOORS].
- MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE AT THE JOB SITE FOR ALL RATED DOOR ASSEMBLIES.
- FRAME SUPPLIER TO PROVIDE WELDED BOX IN HM FRAMES WHERE ELECTRICAL CONNECTIONS ARE REQUIRED, TYP.

DOOR TYPES LEGEND

NOTE: REFER WINDOW FRAME TYPE ELEVATIONS FOR ALUMINUM STOREFRONT DOOR AND FRAME TYPES.



FRAME TYPES LEGEND



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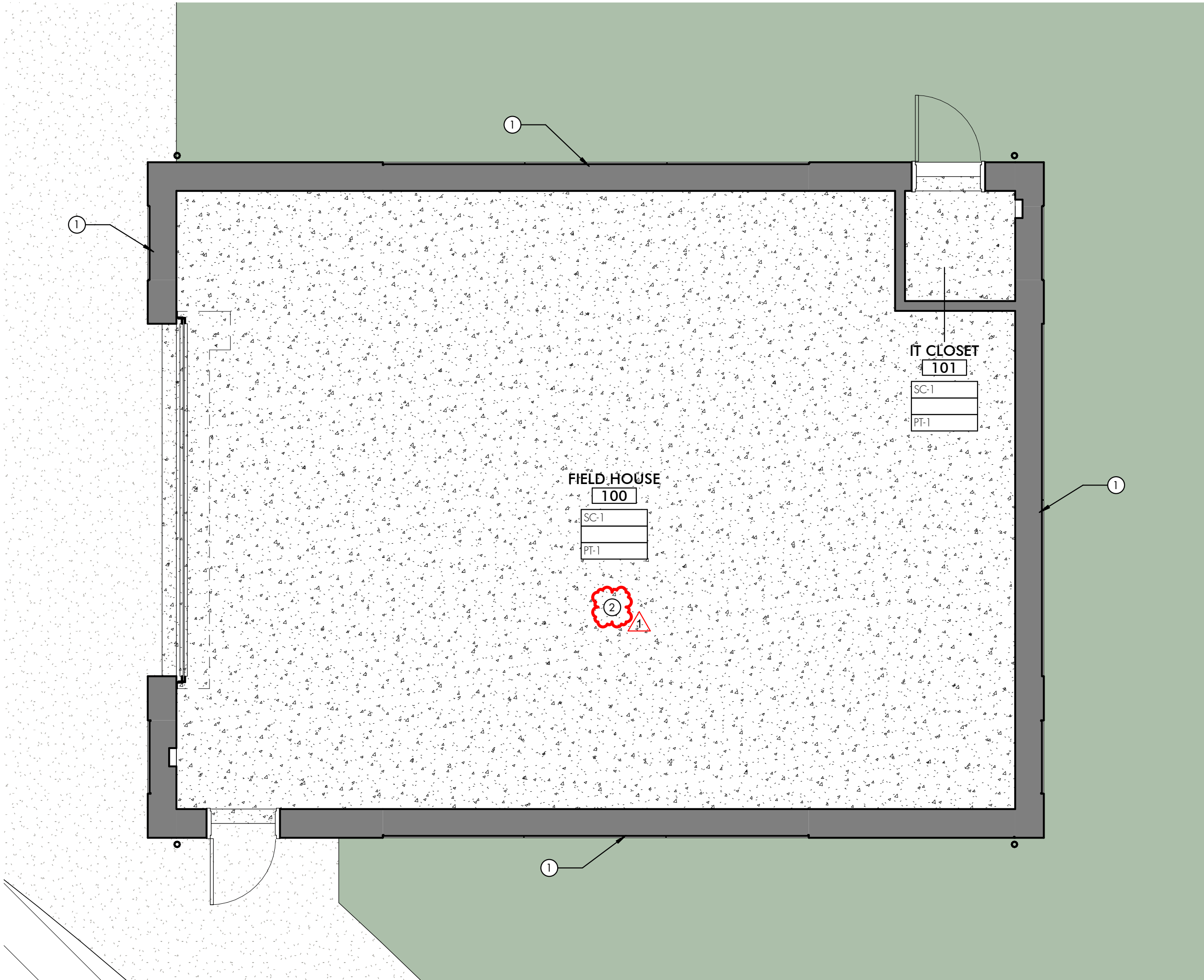
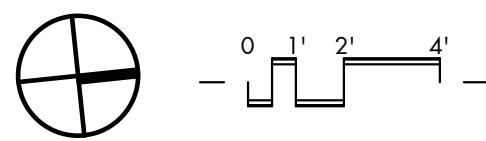
DOOR SCHEDULE

A6.01

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- 01 FINISH FLOOR PLAN
FINISH FIRST LEVEL



FINISH MATERIAL LEGEND

FLOOR

SC-1 SEALED CONCRETE

WALLS

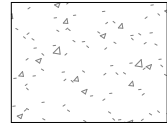
PT-1 PAINT (FIELD)
MFG: SHERWIN WILLIAMS
COLOR: SW7005 PURE WHITE
FINISH: EGGSHELL

CEILING

SEE REFLECTED CEILING PLAN AND
CEILING LEGEND

FLOOR FINISH LEGEND

NOTE: REFER TO FINISH LEGEND FOR MORE INFORMATION



SEALED CONCRETE SC-1

FINISH SYMBOL LEGEND

FINISH TAG

XX ROOM NAME

ROOM NUMBER

XX# FLOOR FINISH

XX# BASE FINISH

XX# WALL FINISH

FLOOR TRANSITIONS

MILLWORK

XX# COUNTERTOP

XX# WALL/BASE CABINETS

FINISH PLAN CODED NOTES

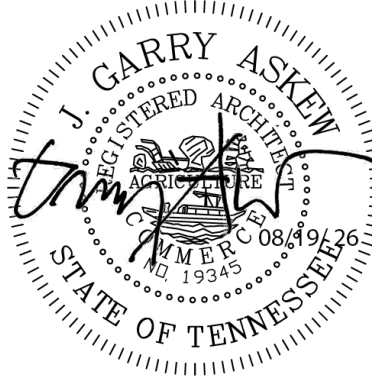
① FACE OF SOFFIT ABOVE TO BE PAINTED PT-1

② ROOF DECK WILL BE PAINTED PT-1

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F 7 2 6 . 4 8 9 1
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FINISH PLAN

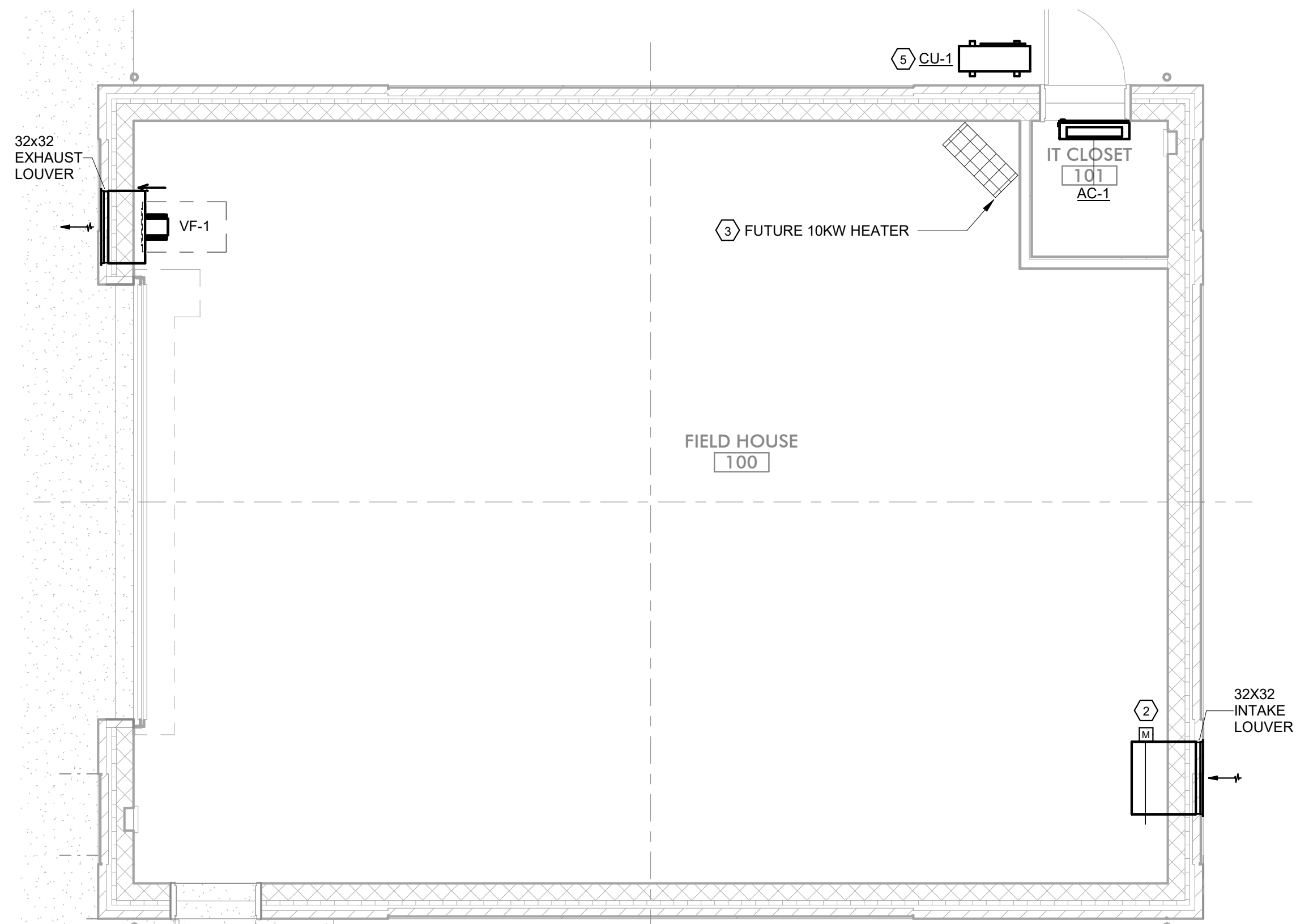
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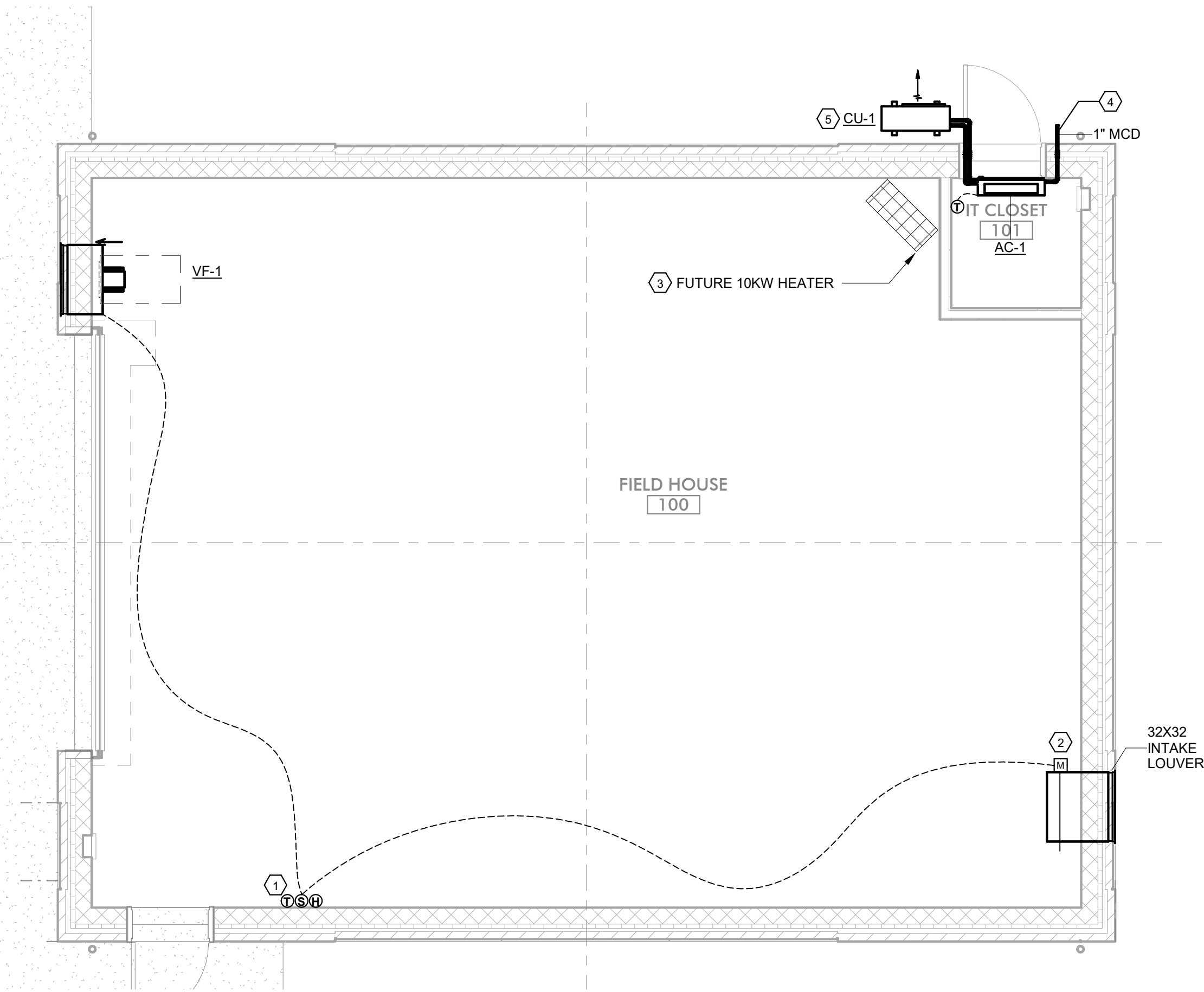
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01 HVAC - FLOOR PLAN
1/4" = 1'-0"



02 HVAC - PIPING FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. INDOOR AC UNIT SHALL BE PLACED A MINIMUM 3' AWAY FROM ANY ELECTRICAL/ CONTROL PANEL OR SWITCH.

NOTES:

1. THERMOSTAT, HUMIDITY SENSOR AND MANUAL ON/OFF SWITCH FOR OPERATION OF VENT FAN.
2. 32X32 INTAKE LOUVER WITH MOTORIZED DAMPER WITH OSHA INLET GUARD, INTERLOCK DAMPER WITH FAN OPERATION.
3. FUTURE 10KW HEATER. NOT IN THIS SCOPE OF WORK. NOT TO BE PROVIDED OR INSTALLED AT THIS TIME.
4. PUMP CONDENSATE TO SPILL TO GREEN AREA ON GRADE. ROUTE 1" MCD PIPE CONCEALED IN WALL AND OUT TO THE EXTERIOR WALL AT 6" ABOVE GRADE TO SPLASHBLOCK.
5. OUTDOOR EQUIPMENT SHALL BE MOUNTED ON CONCRETE PAD EXTENDING MINIMUM 4" ABOVE GRADE.

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F 7 2 6 . 4 8 9 1
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HVAC - FLOOR
PLAN

M1.10

24 JULY 2026

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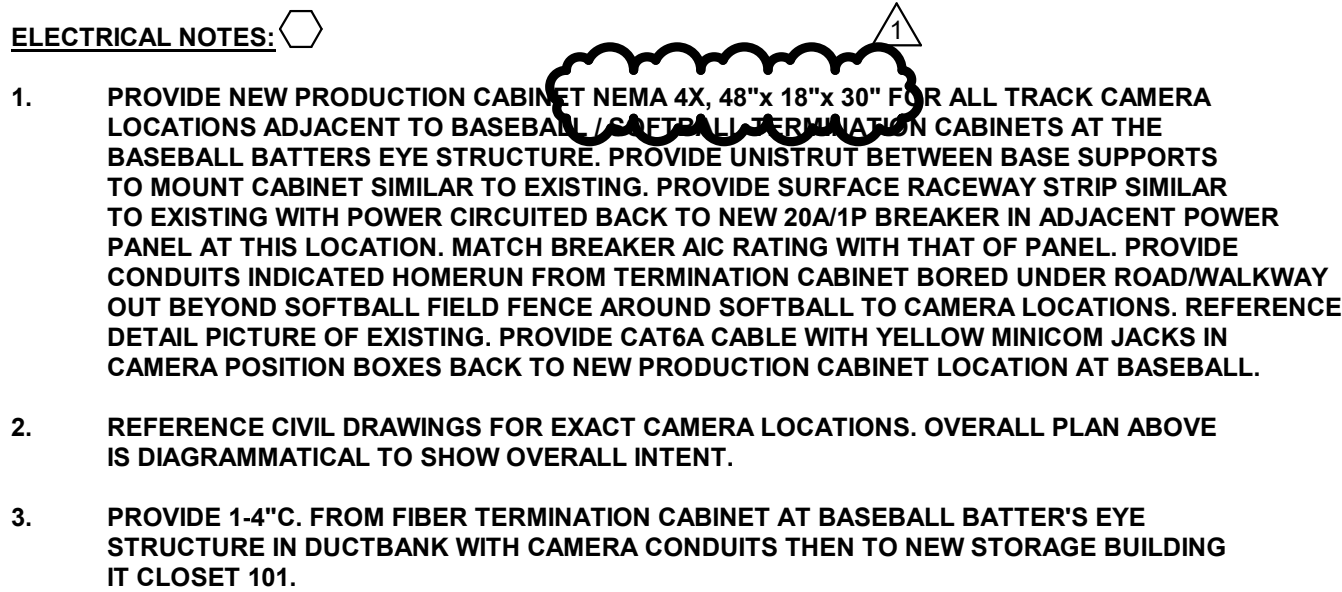
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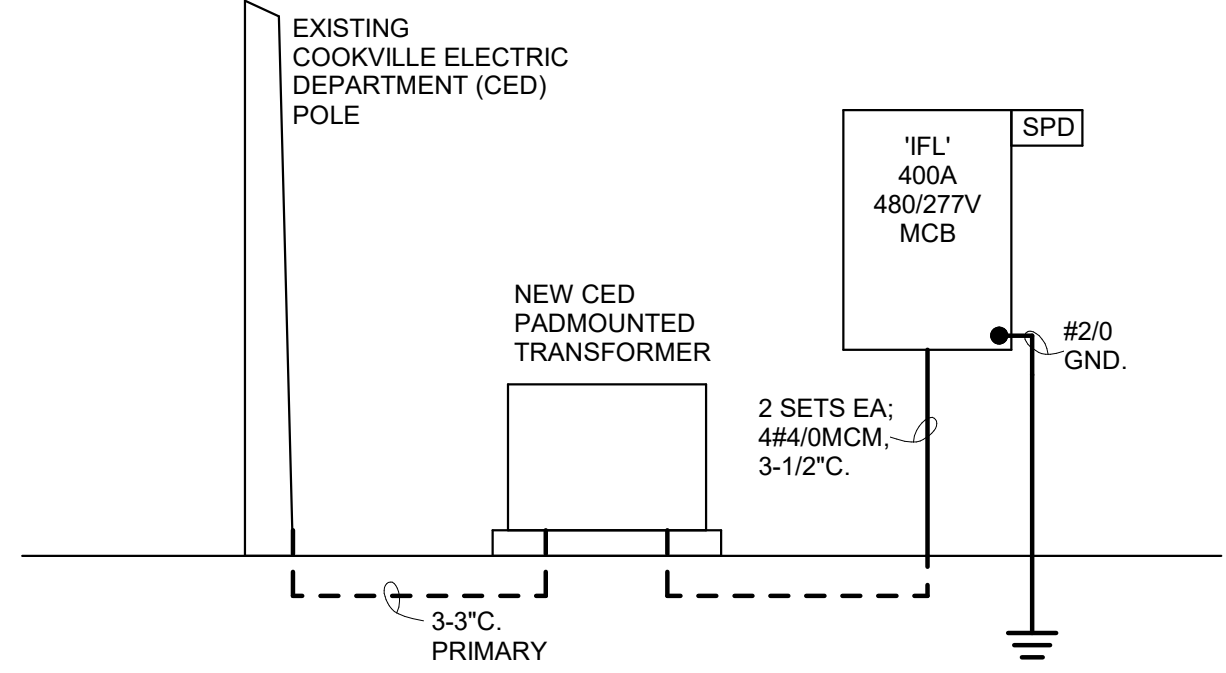
SYMBOLS GENERAL NOTES:

- A. ALL MOUNTING HEIGHTS GIVEN IN THE LEGEND, SCHEDULES, PLANS, AND DRAWING NOTES ARE TO THE CENTERLINE OF THE DEVICE, UNLESS OTHERWISE NOTED.
- B. INSTALL ALL SWITCHES AT A CENTERLINE HEIGHT OF 46" A.F.F. UNLESS OTHERWISE NOTED. WHERE SWITCHES OR RECEPTACLES ARE MOUNTED ABOVE CASEWORK OR MILLWORK, LOCATE AT A HEIGHT OF 3'-8" MAX. ABOVE FINISHED FLOOR OR 3" ABOVE BACKSLASH TO CENTERLINE.
- C. WHERE COVERPLATES CONFLICT WITH CASEWORK OR MILLWORK, SLIGHTLY ADJUST THE MOUNTING HEIGHTS OF THE WIRING DEVICES TO MAKE THE COVERPLATES CLEAR THE COUNTERTOP OR BACKSLASH BY 1".
- D. ALL SYMBOLS, NOTES, AND ABBREVIATIONS SHOWN ON THE LEGEND ARE NOT NECESSARILY USED IN THIS SET OF CONTRACT DOCUMENTS.
- E. NUMERICAL SUBSCRIPT ADJACENT TO DEVICE FIXTURE, EQUIPMENT OR JUNCTION BOX SYMBOL ON THE DRAWINGS DENOTES THE PANELBOARD CIRCUIT NUMBER TO WHICH DEVICE, FIXTURE, EQUIPMENT OR WIRING IN JUNCTION BOX IS CONNECTED.

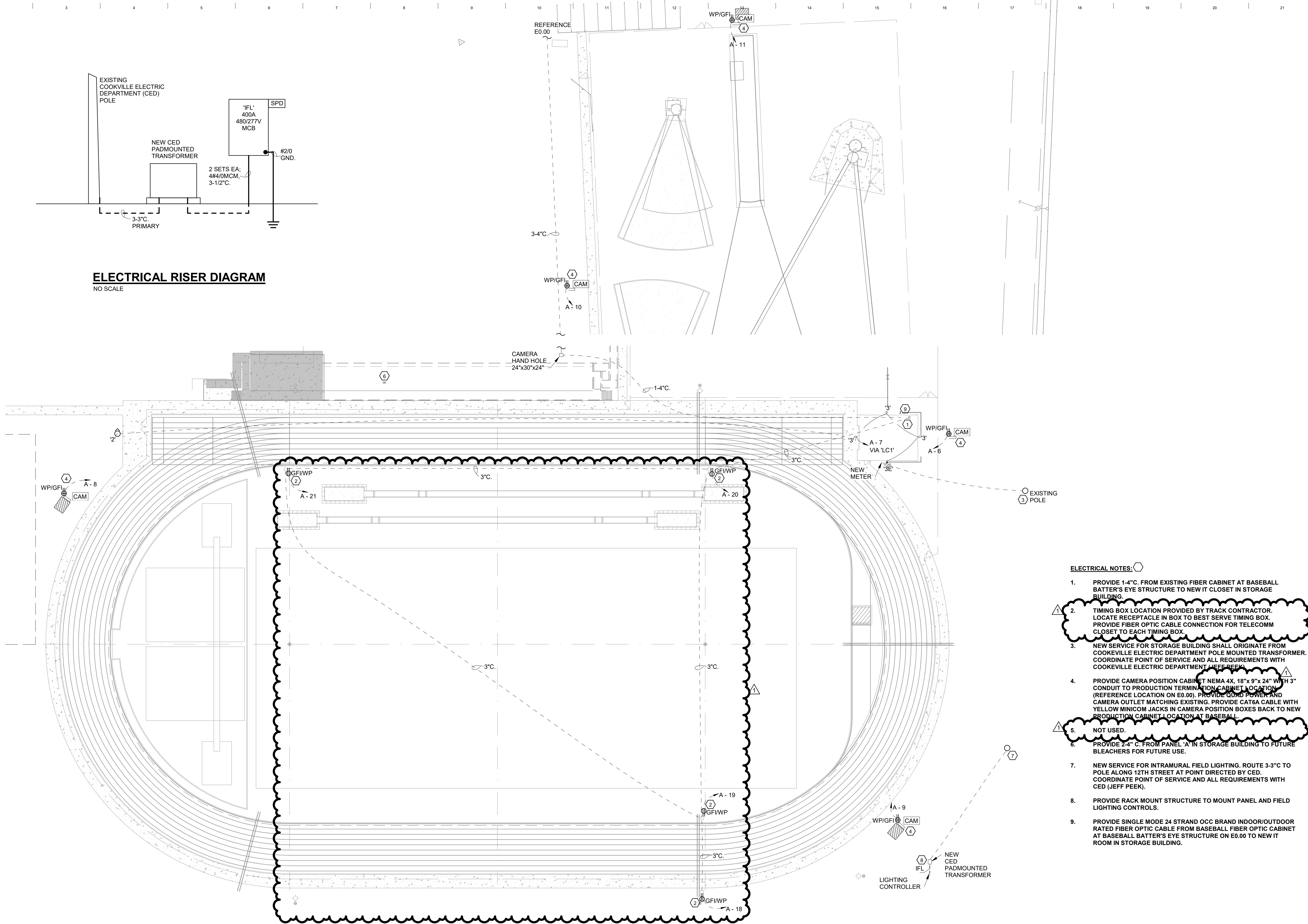
LIGHTING FIXTURE NOTES:

A. ALL MUSCO LIGHTS TYPES 'A1', 'A2', 'B1', 'P1', 'T1', 'T2', 'T3' AND 'T4' ARE STATE APPROVED CAMPUS STANDARD LIGHTING TYPES AND NO OTHER MANUFACTURERS ARE ACCEPTABLE



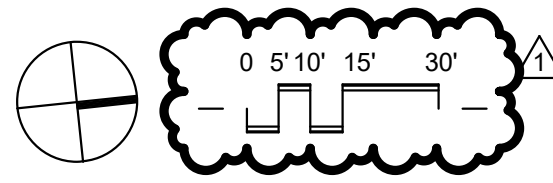


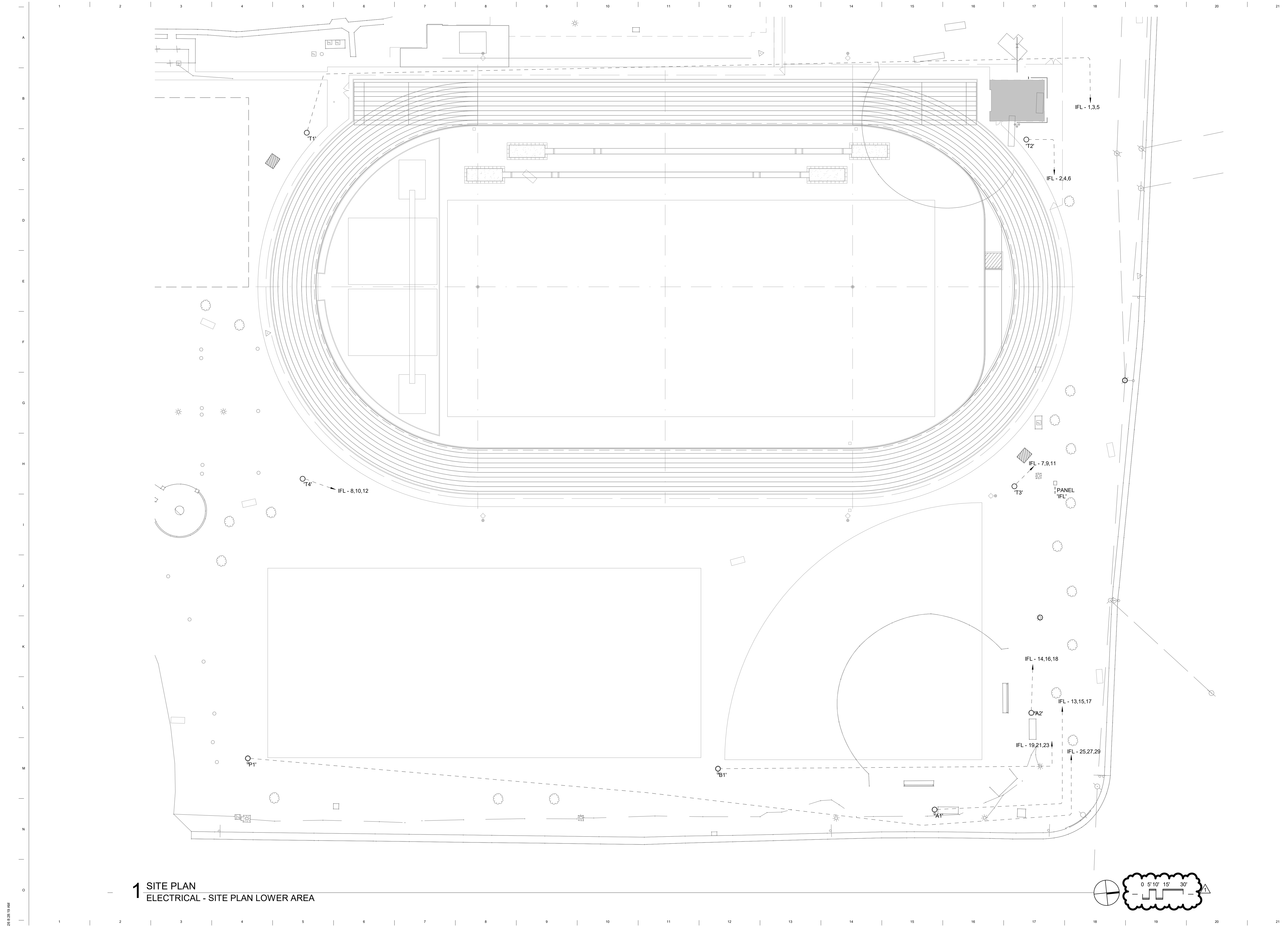
ELECTRICAL RISER DIAGRAM
NO SCALE



ELECTRICAL NOTES:

1. PROVIDE 1-4\"/>
2. TIMING BOX LOCATION PROVIDED BY TRACK CONTRACTOR. LOCATE RECEPTACLE IN BOX TO BEST SERVE TIMING BOX. PROVIDE FIBER OPTIC CABLE CONNECTION FOR TELECOMM CLOSET TO EACH TIMING BOX.
3. NEW SERVICE FOR STORAGE BUILDING SHALL ORIGINATE FROM COOKEVILLE ELECTRIC DEPARTMENT POLE MOUNTED TRANSFORMER. COORDINATE POINT OF SERVICE AND ALL REQUIREMENTS WITH COOKEVILLE ELECTRIC DEPARTMENT (JEFF PEEK).
4. PROVIDE CAMERA POSITION CABINET NEMA 4X, 18\"/>
5. NOT USED.
6. PROVIDE 2-4\"/>
7. NEW SERVICE FOR INTRAMURAL FIELD LIGHTING. ROUTE 3-3\"/>
8. PROVIDE RACK MOUNT STRUCTURE TO MOUNT PANEL AND FIELD LIGHTING CONTROLS.
9. PROVIDE SINGLE MODE 24 STRAND OCC BRAND INDOOR/OUTDOOR RATED FIBER OPTIC CABLE FROM BASEBALL FIBER OPTIC CABINET AT BASEBALL BATTER'S EYE STRUCTURE ON E0.00 TO NEW IT ROOM IN STORAGE BUILDING.





1 SITE PLAN
ELECTRICAL - SITE PLAN LOWER AREA

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**ELECTRICAL -
SITE PLAN
LOWER AREA**

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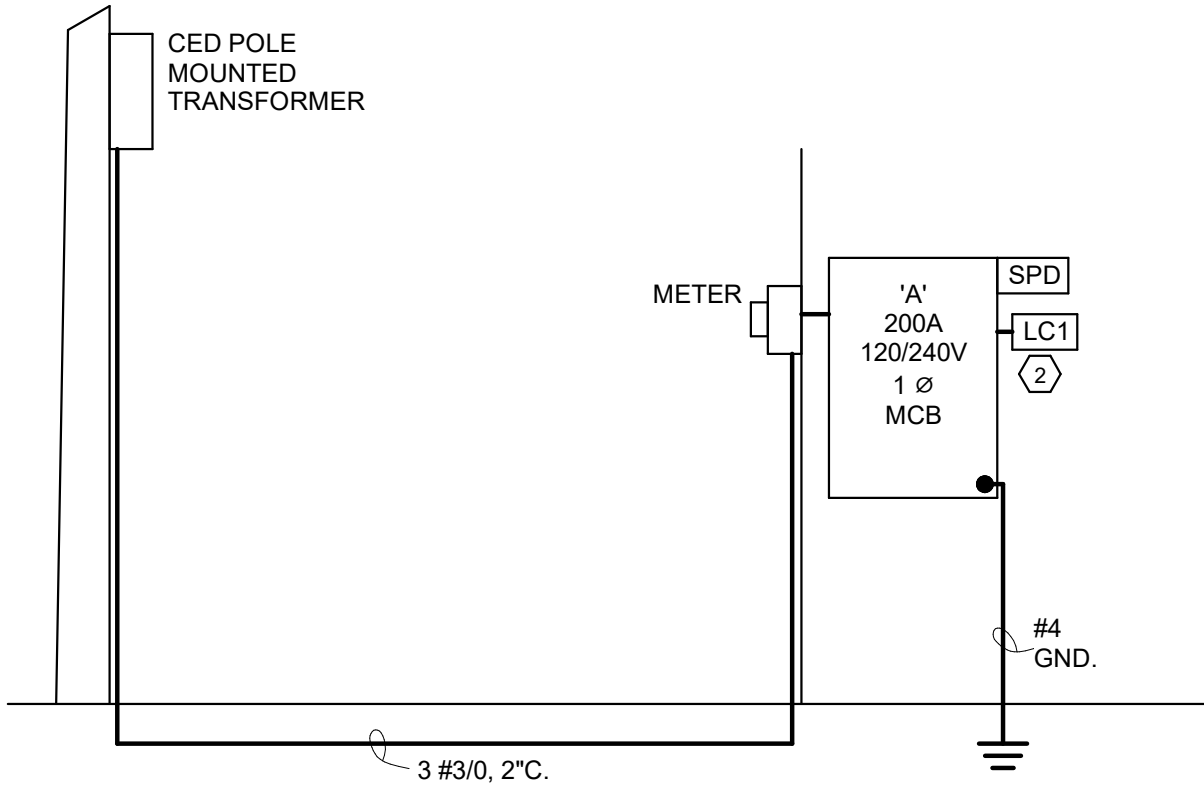
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

A
B
C
D
E
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G
H
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L
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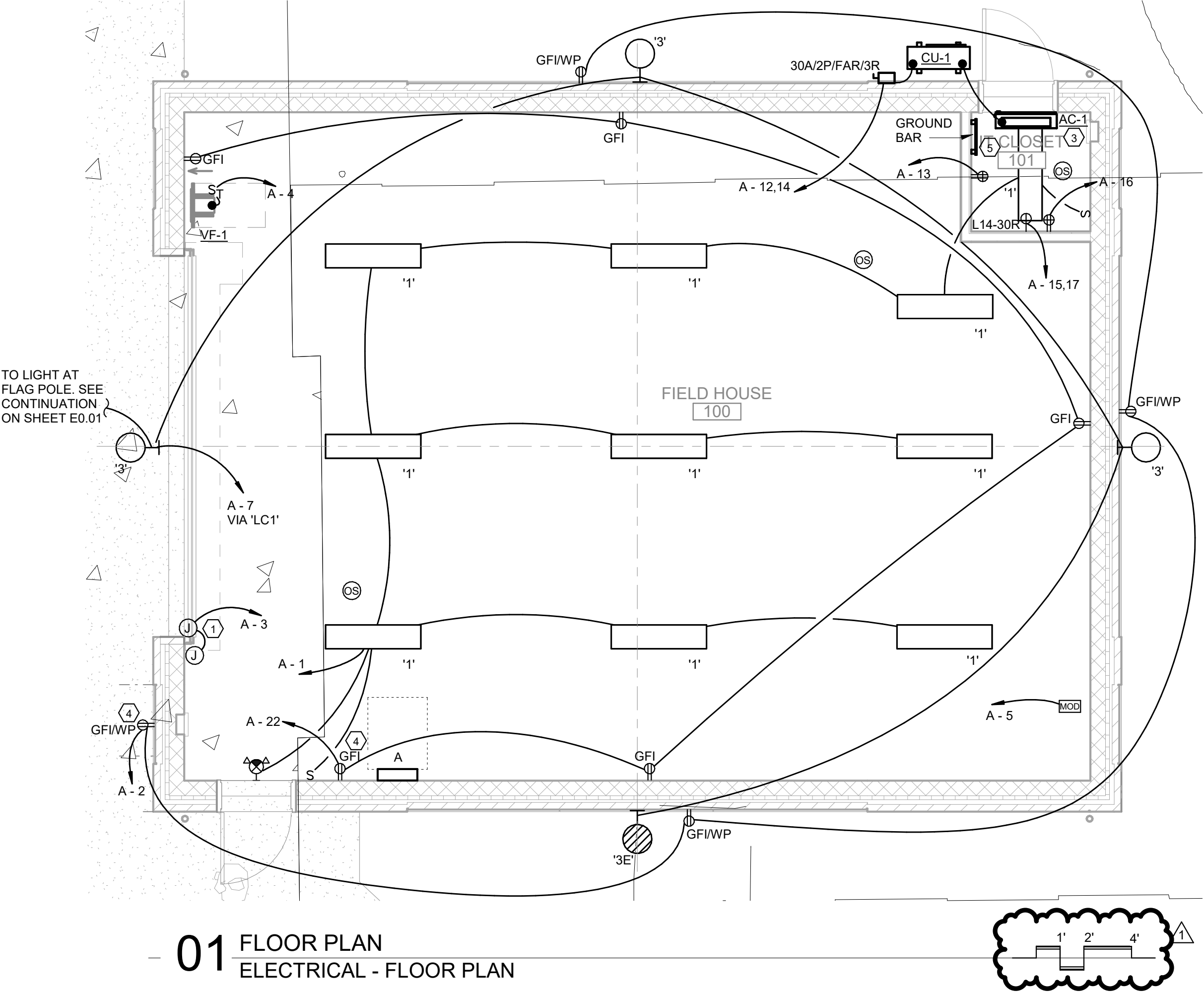
Branch Panel: A														
Location:					Volts: 120/240 Single					A.I.C. Rating: 10,000 A				
Supply From:					Phases: 1					Mains Type: MCB				
Mounting: Surface					Wires: 3					Mains Rating: 200 A				
Enclosure: Type 3R										MCB Rating: 200 A				
Notes:														
CKT	Circuit Description	Demand Code	TRIP	P	A		B		P	TRIP	Demand Code	Circuit Description	CKT	
1	Lighting	Lighting	20 A	1	502	720			1	20 A	Recepta...	Receptacle	2	
3	MOTORIZED DOOR	Equipm...	20 A	1			1000	1656	1	20 A	Motor	VF-1 (3 #10, 3/4" C.)	4	
5	Motor Operated Damper	Motor	20 A	1	50	360			1	20 A	Recepta...	Receptacle (Camera)	6	
7	Exterior Lighting	Lighting	20 A	1			238	360	1	20 A	Recepta...	Receptacle (Camera)	8	
9	Receptacle (Camera)	Recepta...	20 A	1	360	360			1	20 A	Recepta...	Receptacle (Camera)	10	
11	Receptacle (Camera)	Recepta...	20 A	1			360	1344	2	20 A	HVAC	CU-1/AC-1	12	
13	Receptacle	Recepta...	20 A	1	360	1344			--	--	--	--	14	
15	Equipment	Equipm...	20 A	2			1000	360	1	20 A	Recepta...	Receptacle	16	
17	--	--	--	--	1000	180			1	20 A	Recepta...	Receptacle	18	
19	Receptacle	Recepta...	20 A	1			180	180	1	20 A	Recepta...	Receptacle	20	
21	Receptacle	Recepta...	20 A	1	180	720			1	20 A	Recepta...	Receptacle	22	
23	Spare	--	20 A	1			0	0	1	20 A	--	Spare	24	
25	Spare	--	20 A	1	0	0			1	20 A	--	Spare	26	
27	Spare	--	20 A	1			0	0	1	20 A	--	Spare	28	
29	Spare	--	20 A	1	0	0			1	20 A	--	Spare	30	
31	Spare	--	20 A	1			0	0	1	20 A	--	Spare	32	
33	Spare	--	20 A	1	0	0			1	20 A	--	Spare	34	
35	Spare	--	20 A	1			0	0	1	20 A	--	Spare	36	
37	Spare	--	20 A	1	0	0			1	20 A	--	Spare	38	
39	Spare	--	20 A	1			0	0	2	150 A	--	FUTURE PRESSBOX	40	
41	Spare	--	20 A	1	0	0			--	--	--	--	42	
Total Load:					6113 VA		6670 VA							
Total Amps:					51 A		56 A							
Legend:														
Load Classification			Connected Load		Demand Factor		Estimated Demand		Panel Totals					
HVAC			2688 VA		100.00%		2688 VA		Total Conn. Load: 12783 VA Total Est. Demand: 12483 VA					
Lighting			740 VA		100.00%		740 VA							
Motor			1706 VA		100.00%		1706 VA		Total Conn. Current: 53 A Total Est. Demand Current: 52 A					
Equipment			3000 VA		90.00%		2700 VA							
Receptacle			4680 VA		100.00%		4680 VA							
Notes:														



CAMERA TERMINATION BOX DETAIL
NO SCALE



ELECTRICAL RISER DIAGRAM
NO SCALE



- ELECTRICAL NOTES:
- PROVIDE ELECTRICAL CONNECTION TO MOTORIZED DOOR AND CONTROLS PER MANUFACTURER'S RECOMMENDATIONS.
 - PROVIDE 6 POLE ELECTRICALLY HELD LIGHTING CONTACTOR CONTROLLED ON/OFF ASTRONOMICAL TIMECLOCK.
 - INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. PROVIDE ELECTRICAL CONNECTIONS AND ANY DISCONNECT OR EQUIPMENT REQUIRED BETWEEN UNITS PER MANUFACTURER'S RECOMMENDATIONS.
 - WIRE GFI OUTLETS SO THE FIRST RECEPTACLE ON CIRCUIT AT KEYNOTE DEVICE LOCATION PROVIDES GFCI PROTECTION FOR ENTIRE CIRCUIT AND PROVIDE STANDARD RECEPTACLES FOR REST OF THE CIRCUIT SO OWNER KNOWS WHERE TO RESET CIRCUIT AND NOTHING STORED AT BUILDING BLOCKS ACCESS TO RESET.
 - PROVIDE #6 GROUND WIRE FROM PANEL 'A' GROUND BUS TO GROUND BAR IN IT CLOSET 101.



Structure/Fixture Summary						
Structure ID	Structure Height	Fixt. Attachment HL	Fixture Qty	Fixture Type		Circuit
A1-A2	60'	60'	1	TLC-LED-1200		B
		60'	2	TLC-LED-900		B
		16'	1	TLC-BT-575		B
B1	70'	70'	4	TLC-LED-1200		D
		70'	4	TLC-LED-1500		D
		16'	1	TLC-BT-575		D
P1	80'	80'	4	TLC-LED-1500		C
		80'	5	FUTURE		E
T1-T2	100'	100'	5	TLC-LED-1200		A
		100'	10	TLC-LED-1500		A
T3	100'	100'	9	TLC-LED-1200		F
		100'	10	TLC-LED-1500		F
		23'	2	TLC-BT-575		F
T4	100'	100'	4	TLC-LED-1500		C
		100'	5	TLC-LED-1200		A
		100'	10	TLC-LED-1500		A
8			96	121.86 kW		

Circuit Summary				
Circuit	Description	Load	Fixture Qty	
A	Track & Field	59.85 kW	45	
B	Softball 1	7.01 kW	8	
C	Intramural 1	11.28 kW	8	
D	Softball 1/Intramural 1	10.50 kW	9	
E	Softball 2	7.05 kW	5	
F	Track/Softball 1	25.78 kW	21	

Fixture Type Summary									
Type	Circuit	Source	Wattage	Lumens	L80	L80	L70	Quantity	
TLC-BT-575	B	LED 5700K - 75 CRI	575W	52,000	>120,000	277	>120,000	2	
TLC-LED-575	D	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	1	
TLC-BT-575	F	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	2	
TLC-LED-1200	A	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	15	
TLC-LED-1200	B	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	2	
TLC-LED-1200	D	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	4	
TLC-LED-1200	F	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	9	
TLC-LED-1500	A	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	30	
TLC-LED-1500	C	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	8	
TLC-LED-1500	D	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	4	
TLC-LED-1500	F	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	10	
TLC-LED-900	B	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	4	

Single Fixture Amperage Draw Chart									
Driver Specifications (.90 min power factor)				Line Amperage Per Fixture (max draw)					
Single Phase Voltage				208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
TLC-LED-1500				8.4	7.9	7.3	6.3	5.0	3.6
TLC-LED-1200				6.9	6.5	6.0	5.2	4.2	3.0
TLC-LED-900				5.2	4.9	4.5	3.9	3.1	2.3
TLC-BT-575				3.3	3.2	2.9	2.5	2.0	1.5

Light Level Summary									
Calculation Grid Summary									
Grid Name	Calculation Metric	Illumination Ave						Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min			
Infield	Horizontal Illuminance	51.03	42	66	1.58	1.22	A,F	66	
Intramural 1	Horizontal Illuminance	31.83	24	43	1.77	1.31	C,D	17	
Softball 1 (Infield)	Horizontal Illuminance	52.31	40	59	1.46	1.30	B,D,F	38	
Softball 1 (Outfield)	Horizontal Illuminance	32.57	18	43	2.36	1.77	B,D,F	38	
Track	Horizontal Illuminance	51.16	35	68	1.91	1.44	A,F	66	

Branch Panel: IFL

Location:

Supply From:

Mounting: Surface

Enclosure: Type 3R

Volts: 480/277 Wye

Phases: 3

Wires: 4

A.I.C. Rating: 18,000 A

Mains Type: MCB

Mains Rating: 400 A

MCB Rating: 400 A

Notes:

CKT	Circuit Description	Demand Code	TRIP	P	A		B		C		P	TRIP	Demand Code	Circuit Description	CKT
1	'T1' TRACK Lighting (5 #4, 2"C.)	Lighting	40 A	3	7000	7000					3	40 A	Lighting	'T2' TRACK Lighting (5 #4, 2"C.)	2
3	--	--	--	--			7000	7000			--	--	--	--	4
5	--	--	--	--					7000	7000	--	--	--	--	6
7	'T3' TRACK Lighting (5 #2, 2"C.)	Lighting	50 A	3	8983	9000					3	50 A	Lighting	'T4' TRACK Lighting (5 #2, 2"C.)	8
9	--	--	--	--			8983	9000			--	--	--	--	10
11	--	--	--	--					8983	9000	--	--	--	--	12
13	'A1' SOFTBALL FIELD Lighting (5 #10, 3/4"C.)	Lighting	15 A	3	1192	1192					3	15 A	Lighting	'A2' SOFTBALL FIELD Lighting (5 #10, 3/4"C.)	14
15	--	--	--	--			1192	1192			--	--	--	--	16
17	--	--	--	--					1192	1192	--	--	--	--	18
19	'B1' SOFTBALL FIELD Lighting (5 #10, 3/4"C.)	Lighting	20 A	3	3792										20
21	--	--	--	--			3792								22
23	--	--	--	--					3792						24
25	'P1' SOFTBALL FIELD Lighting (5 #6, 1-1/2"C.)	Lighting	25 A	3	4500										26
27	--	--	--	--			4500								28
29	--	--	--	--					4500						30
31															32
33															34
35															36
37															38
39															40
41															42
Total Load:					42658 VA		42658 VA		42658 VA						
Total Amps:					154 A		154 A		154 A						

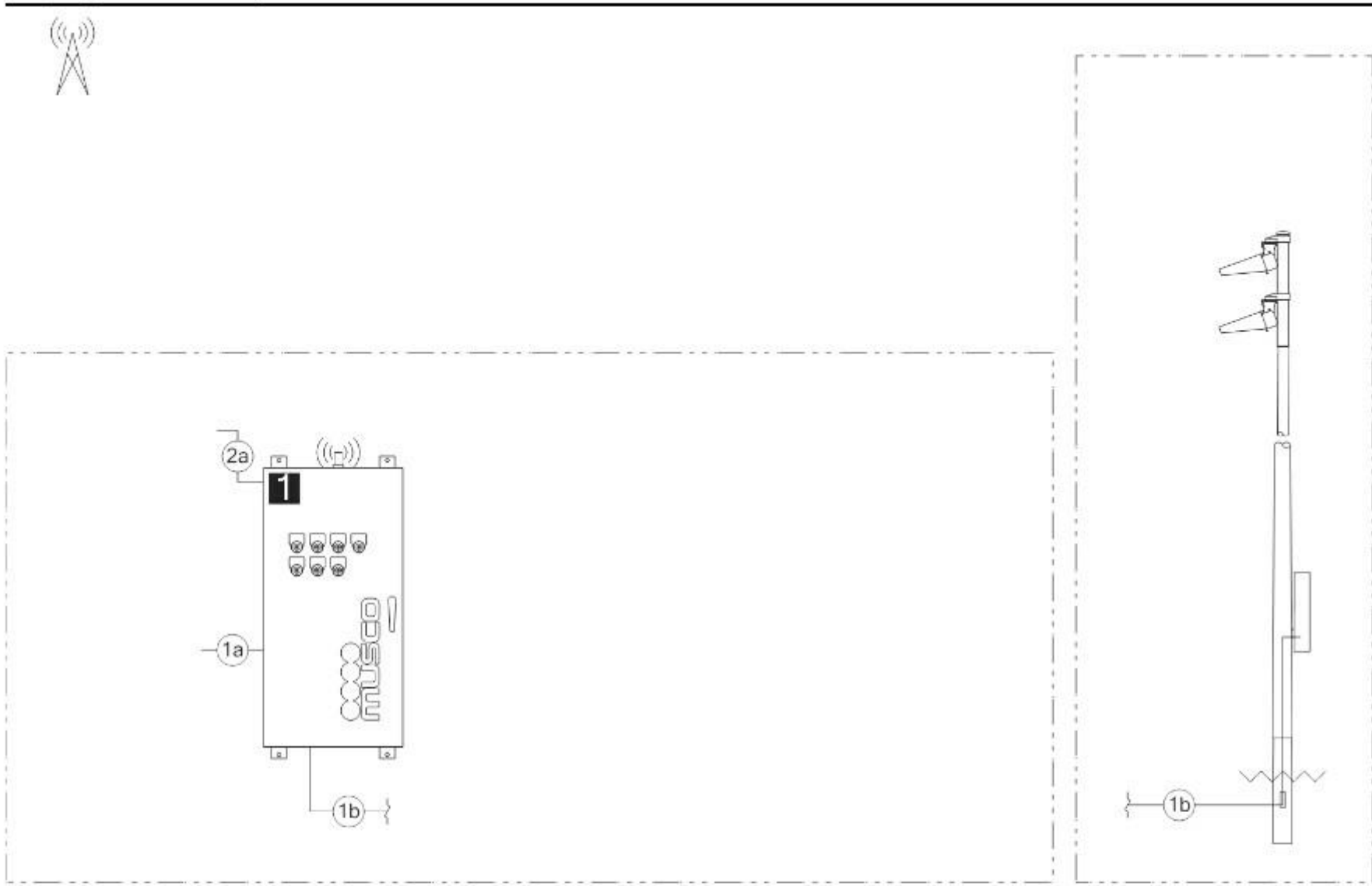
Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	127975 VA	100.00%	127975 VA		
				Total Conn. Load: 127975 VA	
				Total Est. Demand: 127975 VA	
				Total Conn. Current: 154 A	
				Total Est. Demand Current: 154 A	

Notes:



Equipment Layout and Connection Details



Connection Details	
ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.

Equipment	
ID	Description
1	Control and monitoring cabinet - primary



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ICT Project No. 2645-00223-00



SBC #:
364/011-05-2025

25007



333 UNIVERSITY DRIVE
COOKEVILLE, TN 38501

REVISION DATE
1 Addendum 01 08/19/2026

PANEL
SCHEDULE AND



I.C. Thomasson Associates, Inc.
A Sales O'Brien Company
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ICT Project No. 2645-00223-00



SBC #:
364/011-05-2025

25007



333 UNIVERSITY DRIVE
COOKEVILLE, TN 38501

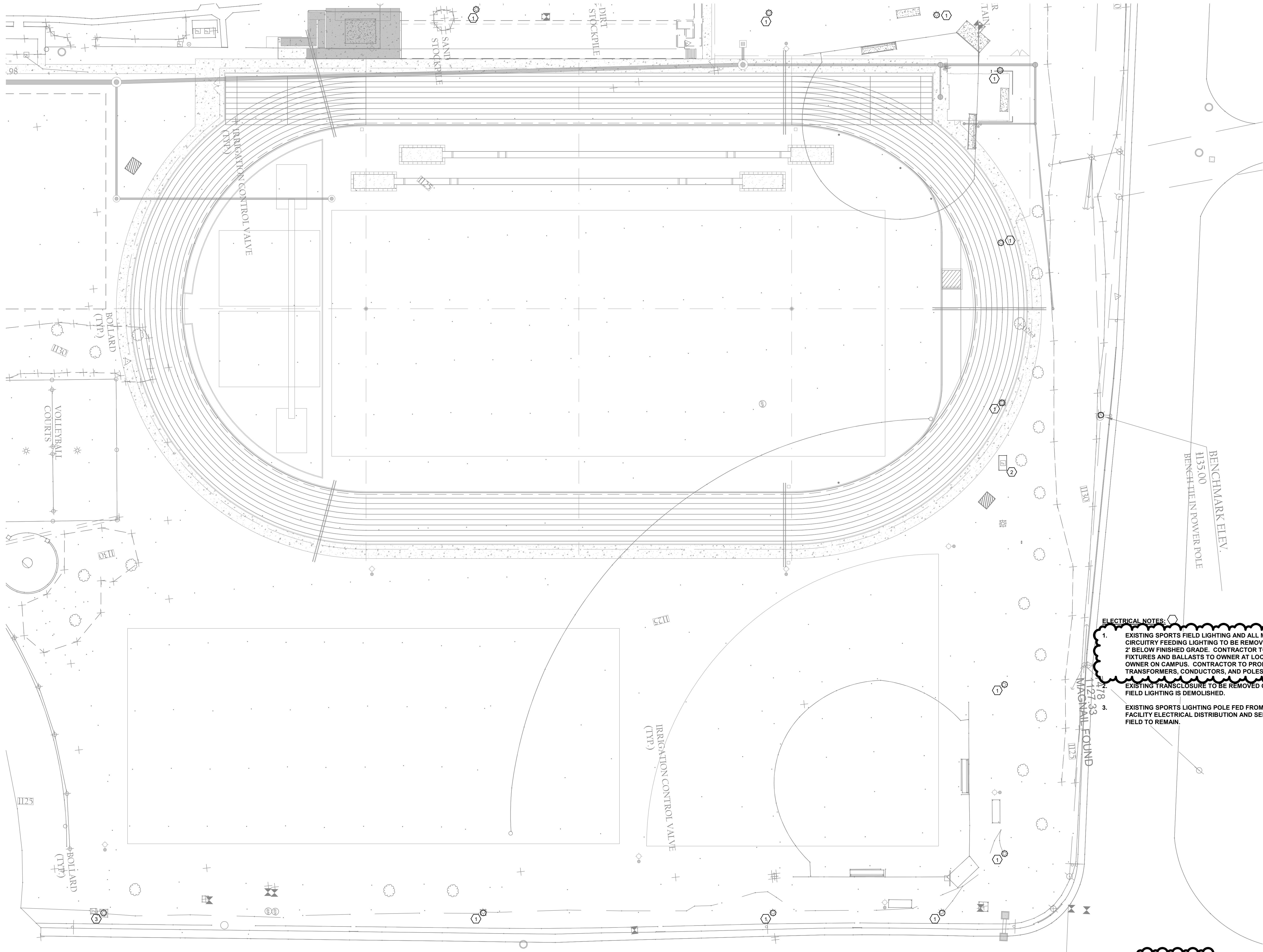
REVISION DATE
1 Addendum 01 08/19/2026

ELECTRICAL -
DEMO SITE
PLAN

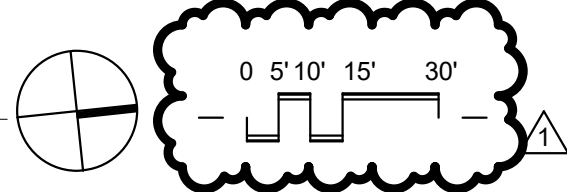
ED0.01

24 JULY 2026

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- ELECTRICAL NOTES:
- EXISTING SPORTS FIELD LIGHTING AND ALL MEDIUM VOLTAGE CIRCUITRY FEEDING LIGHTING TO BE REMOVED. DEMO POLE BASES 2' BELOW FINISHED GRADE. CONTRACTOR TO TURN OVER LIGHT FIXTURES AND BALLASTS TO OWNER AT LOCATION DETERMINED BY OWNER ON CAMPUS. CONTRACTOR TO PROPERLY DISPOSE OF TRANSFORMERS, CONDUCTORS, AND POLES.
EXISTING TRANSCLUSURE TO BE REMOVED ONCE NEW INTRAMURAL FIELD LIGHTING IS DEMOLISHED.
 - EXISTING SPORTS LIGHTING POLE FED FROM SOUTH SIDE OF FACILITY ELECTRICAL DISTRIBUTION AND SERVING SOFTBALL FIELD TO REMAIN.



1 SITE PLAN
ELECTRICAL - DEMO SITE PLAN

6 1 5
T 7 2 6 . 0 0 4 7
F 7 2 6 . 4 8 9 1
6 1 5



DATE: August 19, 2026

TO: Bidders of Record

FROM: Garry Askew, AIA
Bauer Askew Architecture, pllc

PROJECT: TTU TRACK AND FIELD
SBC# 364/011-05-2025
BAA Project Number 25007
Cookeville, Putnam County, Tennessee

SUBJECT: Pre-Bid RFIs and Responses from BAA and Consultants

1. Question: Specification Section 31 20 10, Earthwork Under the Building, is missing. Is this needed?
Answer: Specification Section 31 20 10 was removed from the Project Manual.

2. Question: Division 3 Concrete, Division 3/9 Sealed Concrete, Division 5/9 Metal Framing for the IT Closet, Division 9 Gypsum Board for the IT Closet, and Division 23 HVAC appear to be missing from the Project Manual. Are these sections required?
Answer: Refer to the Project Manual for Divisions 3, 5, 9, and 23.

3. Question: Division 32 Field Painting/Markings appears to be missing from the Project Manual. What requirements apply?
Answer: The field turf is a proprietary product and markings shall be in accordance with the manufacturer's specifications. Contractor shall submit a marking plan to the designer for approval per the note on Sheet C1.02.

4. Question: Division 32 Irrigation Systems appears to be missing. What are the requirements for the proposed irrigation system at the throwing event area?
Answer: The proposed irrigation system for the throwing event area is design-build by the contractor.

5. Question: Notes 9 and 10 on C0.04 do not provide enough information to price demolition or relocation of the existing irrigation system. What is the contractor's responsibility?
Answer: The information provided represents the extent of information known. The contractor shall include in the base bid repair or replacement of the existing system to pre-construction conditions, except within the track and field area, which is not irrigated. The throwing event area shall receive a new design-build irrigation system per the drawings.

6. Question: What are the requirements for the design-build irrigation system identified on C2.04?
Answer: The proposed irrigation system is design-build by the contractor and is required to irrigate all turf around the throwing events. The system will tie into the existing water system adjacent to the future bleachers and shall have an automatic controller that can be operated manually or by cellular/Wi-Fi.

7. Question: Is seed/straw or sod required on disturbed areas that do not receive new construction?

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Answer: Per the notes on Sheet C0.01, all graded areas are to be mulched and seeded. The throwing event area is indicated on the drawings to receive sod.

8. Question: Section 32 17 23, Pavement Markings, appears unnecessary because there is no parking lot work. Is this specification required?

Answer: The pavement marking specification has been removed.

9. Question: C3.02 includes a Heavy Duty Asphalt detail, but no other asphalt is shown except within the running track assembly. Where does this detail apply?

Answer: Asphalt is for track and field event construction per the drawings.

10. Question: Are bollards required at the overhead door in the Storage Building?

Answer: No.

11. Question: If the bleacher foundations are carried as part of Alternate No. 1, what condition should be provided in the base bid in their place, sod or seed/straw?

Answer: Per the notes on Sheet C0.01, all graded areas are to be mulched and seeded. The throwing event area is indicated on the drawings to receive sod.

12. Question: Is any work, including field striping, required at the Proposed Intramural Field or Existing Intramural Field?

Answer: No field striping is required for the Proposed Intramural Field. The Existing Intramural Field is shown for the contractor's knowledge because the field will be in use during construction.

13. Question: The graphic scales on C2.02 through C2.05 indicate 1" = 40', but the enlarged grading and drainage plans are actually 1" = 20'. Which scale is correct?

Answer: The scales have been corrected.

14. Question: Will portions of the surrounding athletic facilities remain active during construction?

Answer: All intramural fields outside the construction limits will be active during construction. The contractor shall provide construction fencing to prohibit access to the construction area while maintaining access to the intramural fields outside the construction limits.

15. Question: Is the cost of utility consumption the responsibility of the contractor?

Answer: Yes.

16. Question: Is the cost of the building permit the responsibility of the contractor?

Answer: Yes.

17. Question: Is the cost of testing and inspections the responsibility of the contractor?

Answer: Refer to Specification Section 01 45 29.

18. Question: May the contractor tie into existing site fencing to complete the required secure construction perimeter?

Answer: The contractor shall provide construction fencing to ensure access to the construction area is prohibited while maintaining access to intramural fields outside the construction limits. The contractor may tie into existing fences as long as the requirements are met.

19. Question: Is the temporary fence shown between the softball field and the proposed track necessary?

Answer: The temporary fence is part of the construction fencing and is the only construction fencing location mandated by the drawings. All other construction fencing is means and methods installation by the contractor.

20. Question: Is free contractor parking available in the existing parking lots?

Answer: No. A laydown and parking area will be provided to the contractor as shown on C0.01.

21. Question: Is there supposed to be landscaping or planting work on the project since a landscape architect was listed on the seals page?

Answer: The landscape architect was removed from the seals page because there is no landscape architect on the project.

22. Question: What natural turf requirements apply to the hammer, shot put, javelin, and discus areas?

Answer: A specification section for the natural turf has been added.

23. Question: Does the fencing associated with Alternate No. 2 tie into the proposed press box or run behind it?

Answer: The fencing continues under the bleachers and ties into the adjacent fencing for softball.

24. Question: The chain-link fence details contain conflicting post sizes. What post sizes are required?

Answer: Refer to the revised drawings and specifications.

25. Question: The chain-link fence details conflict between 3,000 psi and 4,000 psi concrete for post foundations. Which is required?

Answer: 3,000 psi concrete is required. Refer to the revised drawings and specifications.

26. Question: The chain-link fence details show conflicting footing sizes and depths. What footing dimensions are required?

Answer: Refer to the revised drawings and specifications.

27. Question: Is windscreen part of the chain-link fence scope?

Answer: Refer to the revised drawings and specifications.

28. Question: Is the specified galvanized framework with supplemental thermally fused PVC coating required?

Answer: Refer to the revised drawings and specifications.

29. Question: What color is the chain-link fence fabric?

Answer: Black. Refer to the revised drawings and specifications.

30. Question: What rail configuration is required for the chain-link fencing?

Answer: Refer to the revised drawings and specifications.

31. Question: Is bottom tension wire required on the 6-foot chain-link fence?

Answer: Refer to the revised drawings and specifications.

32. Question: Where are galvanized steel post sleeves required?

Answer: Refer to the revised drawings and specifications.

33. Question: What gate swing direction and clearance are required at the chain-link gates?

Answer: Refer to the revised drawings and specifications.

34. Question: C1.02, Keynote 22, identifies standard chain-link fencing and a 4-foot pedestrian gate but does not provide a length, height, or coating type. What is required?

Answer: Contractor shall field verify existing conditions and match accordingly.

35. Question: Is a registered land surveyor required to verify the fence location and property line?

Answer: No survey is required. Refer to the revised drawings and specifications.

36. Question: Should the fence at the throws compound be racked or stepped to follow the approximately 6 feet of grade change?

Answer: The fence is to be racked.

37. Question: Confirm the required layout offsets for the track perimeter fence and throws compound fence.

Answer: The fence mesh around the track shall be 3'-0" from the back of the outside perimeter curb. The fence mesh around the throwing events is shown at 2'-0" from the edge of sidewalk.

38. Question: E0.00 Electrical Note 1 requires boring. Does this apply only beneath roadways and sidewalks or extend beyond the existing fence line?

Answer: Boring applies only beneath roadways and sidewalks.

39. Question: Are special conditions required for supporting low-voltage conduit bored beneath roadways or sidewalks?

Answer: No special conditions are required. Depth shall meet NEC requirements.

40. Question: No details were provided for the new production cabinet serving the track cameras. What is required?

Answer: Additional information for the production cabinet has been provided on E0.00, and a detail of the existing cabinet is shown on E1.10.

41. Question: No details were provided for the new camera position cabinet. What is required?

Answer: Additional information has been provided on E0.01 and E2.10.

42. Question: Please provide electrical and mechanical plans for the power and HVAC requirements associated with Section 13 34 16 and finish information for components not included with the pre-engineered structure.

Answer: Countertops and base are not included in the project. Ceiling and flooring finishes are located on Sheet F1.10 in Addendum No. 1.

43. Question: What brick color and manufacturer should the new building match?

Answer: The building shall match the ACME Engineering Building. The brick specified for ACME was Meridian Brick Company, full range, sand face, face set ACME M/S Windsor Park Velour. Refer to the updated coded notes on Sheet A3.00.

44. Question: Does the exposed structure in the Field House receive dryfall paint?
Answer: The roof deck will be dryfall painted, but the ceiling structure will not be painted.

45. Question: Are the three 3-inch conduits for the primary power feed to the CED transformer the contractor's responsibility, and where should they terminate?
Answer: The three 3-inch conduits are the contractor's responsibility and shall be routed to the existing pole along West 12th Street. Sheet E0.01 is diagrammatic and does not indicate the exact location.

46. Question: The graphic scale on AS.01 is incorrect. What is the correct scale?
Answer: The graphic scale was updated for Detail 01/AS.01 in Addendum No. 1.

47. Question: The graphic scale for the enlarged IT Closet plan on A1.10A is incorrect. What is the correct scale?
Answer: The graphic scale was updated for Detail 03/A1.10A in Addendum No. 1.

48. Question: The graphic scale on A1.50 is incorrect. Has this been corrected?
Answer: The graphic scale was updated as part of Addendum No. 1.

49. Question: The section details on A4.11 appear to have an incorrect graphic scale. What scale applies?
Answer: Details 02 and 03 are set at 1.5" = 1'-0".

50. Question: No scale or dimensions were provided on M1.10. Has this been corrected?
Answer: The scale was updated as part of Addendum No. 1.

51. Question: The graphic scale on ED0.01 is incorrect. Has this been corrected?
Answer: The scale was updated as part of Addendum No. 1.

52. Question: The graphic scale on E0.01 is incorrect. Has this been corrected?
Answer: The scale was updated as part of Addendum No. 1.

53. Question: The graphic scale on E0.02 is incorrect. Has this been corrected?
Answer: The scale was updated as part of Addendum No. 1.

54. Question: No scale or dimensions were provided on E1.10. Has this been corrected?
Answer: The scale was updated as part of Addendum No. 1.

55. Question: Doors 101 and 102 have incorrect heights on the door schedule. What are the required heights?
Answer: Door 101 was revised to 8'-4" and Door 102 was revised to 10'-0" high on the door schedule. Refer to A6.01 in Addendum No. 1.

56. Question: The door frame heights appear inconsistent with the CMU coursing. What frame height is required?
Answer: A6.01 does not specify an exact frame height. The details and Frame Type Legend indicate a 4-inch door frame.

57. Question: The unit price description combines unsuitable soil replacement and sinkhole remediation. How should the unit prices be separated?
Answer: The Project Manual has been revised to provide separate unit prices for:

1. Unsuitable Soil Cut/Replace with Engineered Fill
2. Unsuitable Soil Cut/Replace with Stone
3. Sinkhole Remediation with Excavation and Engineered Fill
4. Sinkhole Remediation with Excavation and Stone

58. Question: How should the blocking at the soffit and continuous soffit vent be constructed?

Answer: Provide a continuous 2x rim board at the end of the truss top-chord overhang or solid 2x blocking between each truss top-chord overhang at the end of the overhang per 2/S4.01. Members visible through the soffit vent shall be treated wood painted black.

59. Question: What blocking panels are required between the roof trusses?

Answer: Blocking panels are designed and provided by the truss supplier between each truss.

60. Question: Do the timing pits identified by Notes 17 and 18 on C1.02 require any work beyond that shown on E0.01 and the Timing System Junction Box detail on C3.01?

Answer: The timing boxes will include power and conduit for Owner-provided data.

61. Question: Please provide a specification for the flagpole assembly and identify the required height.

Answer: A flagpole specification has been added to the Project Manual. Refer to the specification for the required information.

62. Question: Please provide a specification and Basis-of-Design for the channel/precast slot drain system and cover.

Answer: Specification Section 33 41 00 has been revised.

63. Question: Is seed/straw or sod required at the Proposed Intramural Field?

Answer: Seed and straw are required. A specification has been added.

64. Question: Is the cost for 1,000 CY of undercut to be included in the base bid?

Answer: Yes. It shall be included in the contractor's base bid.

65. Question: Do the Long Jump runways and Javelin runway receive the same athletic surface system as the track?

Answer: Yes.

66. Question: The Finish Tag on F1.10 does not identify a ceiling finish. Where are the ceiling finishes shown?

Answer: Refer to the Reflected Ceiling Plan and Ceiling Legend on Sheet A1.10A.

67. Question: Is the gypsum board ceiling in the IT Closet to be painted PT-1?

Answer: Yes.

68. Question: Are hollow metal doors and frames to be painted?

Answer: Yes. All hollow metal doors and frames shall be painted.

69. Question: Is the electrical service for the Storage Building overhead or underground?

Answer: The electrical service is underground from an existing pole on West 12th Street.

70. Question: Is the contractor responsible for fees associated with the NOC and SWPPP?

Answer: The NOC has been granted. The contractor is responsible for adding themselves to the NOC, paying applicable fees throughout construction, and filing the Notice of Termination.

71. Question: Which permits are required, and who is responsible for permit fees?

Answer: The contractor is required to pull all necessary permits with the City of Cookeville and is responsible for the associated permit fees. The inquiry specifically identified the Land Disturbance Permit, Demolition Permit, Grading Permit, and Building Permit.

72. Question: Can the outer perimeter curb around the track be poured monolithically with the sidewalk?

Answer: No. The outer perimeter curb shall be poured independently of the adjacent sidewalks.

73. Question: The Track Section on C3.01 shows a raised outer perimeter curb while other details show the curb flush. Which condition is correct?

Answer: The details have been revised.

74. Question: Please provide a specification for the downspout boots.

Answer: Refer to the revised drawings and specifications.

75. Question: Is the field turf intended to be procured from Motz?

Answer: Yes. The field turf is to be Motz.

76. Question: The approved turf infill is listed as TPE, but the existing stadium surface is rubber and sand. Which infill is required?

Answer: Refer to the revised specifications.

77. Question: Is a third-party insured full-system warranty required for the synthetic turf system?

Answer: Refer to the revised specifications.

78. Question: Does Tennessee Tech pay sales tax, and does the tax exemption extend to contractors?

Answer: Tennessee Tech is tax exempt. The exemption does not extend to contractors. Refer to the revised specifications for the applicable procurement requirements.

79. Question: May the Long Jump runways be constructed entirely of concrete instead of asphalt?

Answer: Yes. Concrete may be used, but it must follow the concrete pavement details.

80. Question: May the High Jump area/D-zone be constructed of concrete instead of asphalt?

Answer: Yes. Concrete may be used, but it must follow the concrete pavement details.

81. Question: May the 10-inch stone section beneath the synthetic turf consist of approximately half No. 3 stone and half No. 57 stone?

Answer: BCA takes no exception as long as the turf manufacturer approves the substitution.

82. Question: The synthetic turf underdrain detail identifies Schedule 40 PVC while the plan identifies HDPE. Which material is required?

Answer: HDPE.

83. Question: The natural turf collector details show 3 inches of gravel without a horizontal dimension. Is the gravel required only adjacent to the drain trench or across the entire natural turf area?

Answer: Stone is required only at the drain. Refer to the revised detail.

84. Question: What valve type and diameter are required for the steeplechase pit drain?

Answer: The steeplechase valve shall be included with the steeplechase water jump form and drain per Specification Section 11 68 33.43. Sheet C2.03 has been revised.

85. Question: Are the 6-foot-wide sidewalks west and south of the track light-duty or heavy-duty concrete?

Answer: Use the typical sidewalk section. Refer to the updated detail.

86. Question: Is the Proposed Intramural Field to be irrigated?

Answer: The contractor shall repair or replace the existing irrigation system.

87. Question: The disconnect for CU-1 on E1.10 is labeled "FAR." What does this mean?

Answer: Fused as required. Contractor shall fuse per the nameplate data of the equipment provided.

88. Question: The quantity of 4-inch conduit shown on E0.00 does not appear to match Electrical Note 3. Please clarify.

Answer: The one 4-inch conduit is for IT service to the Storage Building and is separate from the camera conduits and requirements. It is routed in the same trenches/borings as the camera conduits.

89. Question: What work is required regarding the existing sports lighting poles shown on ED0.01?

Answer: Further clarification has been added to ED0.01.

90. Question: The drawings show telecommunications cabling and fiber, but the Project Manual does not include Division 27 specifications. What requirements apply?

Answer: Telecommunications specifications have been added in Addendum No. 1.

91. Question: Are the Musco Field Lights Owner-furnished or Contractor-furnished?

Answer: The Musco Field Lights are Contractor-furnished and installed.

92. Question: The metal panel roof is specified as both steel and aluminum. What material is required?

Answer: The batten standing-seam metal roof is galvalume. Refer to the Project Manual.

93. Question: The specifications identify a snap-lock vertical seam panel while the drawings show a batten seam panel. Which roof system is required?

Answer: Batten seam panels shall be used. The drawings and specifications have been revised to require a 1-1/2-inch minimum batten standing-seam roof system.

94. Question: M1.10 references a future 10 kW heater. Is the contractor responsible for furnishing the heater or providing power for it?

Answer: No. The contractor is not responsible for providing the heater or power for the heater as part of this project.

95. Question: Is controlled blasting required or permitted on the project?

Answer: Controlled blasting will not be allowed, and the specification section has been removed.

96. Question: What are the contractor's responsibilities for electrical service between the existing CED pole, meter, and panelboard?

Answer: The contractor shall provide underground conduit from the existing pole on West 12th Street to the meter. CED will bring power to the meter. The contractor shall provide wire from the meter to the panelboard, the meter base, and all other requirements per CED standards.

97. Question: C1.02 identifies 3'-6" fencing at the south end of the throwing area while C1.03 identifies 6-foot fencing. Which height is required?

Answer: The desired fencing height is shown on the plans. The 6-foot-tall fence transitions to a 3'-6" fence.

98. Question: The synthetic turf details indicate 12 inches of base stone while the curb detail appears to indicate only 6 inches. What thickness is required?

Answer: 12 inches of base stone is required.

99. Question: Please provide a detail for the flat 12-inch perforated double-wall HDPE collector edge drainpipe.

Answer: Refer to the detail on C3.01.

100. Question: Is the fascia board shown at the wall sections intended to be a James Hardie product?

Answer: The fascia board shall be cement fiber board.

101. Question: A4.10 identifies 3/4-inch OSB roof sheathing while A1.40 identifies 5/8-inch plywood. Which is required?

Answer: Roof sheathing shall be 5/8-inch APA Rated Exposure Sheathing. Refer to updated Sheets A4.10, A4.11, and A1.40 in Addendum No. 1.

102. Question: A4.10 appears to show precast masonry extending below grade. Is this intended?

Answer: Provide 4-inch solid CMU at the foundation. Refer to the revised wall sections on Sheet A4.10.

103. Question: Do the "future bleachers" need to be included in the bid in addition to the 170 seats included in the alternate?

Answer: No. The future bleachers do not need to be priced.

104. Question: Provide design, sections, and details for the Press Box construction included in Alternate No. 2.

Answer: Alternate No. 2 shall be per Specification Section 13 34 16.

105. Question: Is drainage required at the Storage Building?

Answer: No foundation drains are required. Roof collectors are provided. Foundation drains were removed from the wall sections on A4.10 in Addendum No. 1.

106. Question: The Javelin Runway detail does not identify the required aggregate or concrete thicknesses. What section is required?

Answer: The detail requires concrete pavement, and a concrete pavement detail is provided on C3.02.

107. Question: The Long/Triple Jump Sand Pit detail does not identify the slope from the sides to the underdrain for the Granular Filter Course. What slope is required?

Answer: The minimum bottom slope is 1%.

108. Question: What bedding depth is required beneath the Long/Triple Jump Take-Off Board System?

Answer: The bedding depth is 6 inches.

109. Question: What bedding depth is required beneath the pipe in the Shot Put Landing Area?

Answer: The bedding depth beneath the pipe is 3 inches.

110. Question: The Perimeter Track Sidewalk detail does not identify the concrete thickness except within the shoulder section. What thickness is required?

Answer: Refer to the typical sidewalk detail on C3.02.

111. Question: The Javelin Runway references Vehicular Concrete Pavement and the Perimeter Track Sidewalk references Heavy Duty Concrete Pavement, but corresponding pavement details were not identified. What details apply?

Answer: Refer to the concrete pavement detail on C3.02.