



Addendum No. 2

TO ALL BIDDERS ON:

Indian Trail Middle School Synthetic Track Reconstruction
ITB 6763

Date: April 22, 2024

The following changes, additions, and clarifications are hereby made part of the contract documents for the above referenced project and shall be taken into account in the preparation of all bids and the execution of work. **Bidders shall acknowledge receipt of this addendum on the Bid Form.**

The Bid Opening date and time **REMAIN AS SPECIFIED** in Addendum 1.

PLANS:

1. G-000 COVER SHEET
 - a. Remove sheet in its entirety and replace with provided sheet
2. C-010 DEMOLITION PLAN
 - a. Remove sheet in its entirety and replace with provided sheet
3. C-100 OVERALL LAYOUT PLAN
 - a. Remove sheet in its entirety and replace with provided sheet
4. C-100B OVERALL LAYOUT PLAN – ALTERNATE 3 -
 - a. Insert provided sheet into plans
5. C-201B TRACK GRADING PLAN – ALTERNATE 3 -
 - a. Insert provided sheet into plans
6. C-401 TRACK UTILITY PLAN
 - a. Insert provided sheet into plans

SPECIFICATIONS:

1. SECTION 00 0110 – TABLE OF CONTENTS
 - b. Remove section in its entirety and replace with provided section
2. SECTION 0002 – ADVERTISEMENT FOR BIDS
 - a. Remove section in its entirety and replace with provided section

3. SECTION 0006 – BID FORM
 - a. Remove section in its entirety and replace with provided section
4. SECTION 012900 – ALTERNATES
 - a. Insert provided section in its entirety
5. SECTION 260001 – ELECTRICAL
 - a. Insert provided section in its entirety

CLARIFICATIONS:

1. 6" circles are acceptable for the track core samples.
2. 14 days is acceptable for the cure time for this track system.
3. This project does not include the football field turf conversion.
4. Conica Polyurethane Track systems is an equivalent to the other specified porous basement structural spray systems we have listed.
5. TDOT 411E is acceptable for the asphalt top course. The asphalt top course within the track footprint (any pavement that will receive track surfacing) must be a virgin asphalt mix. Any site asphalt, outside the track footprint does not need to be a virgin mix.
6. The proposed grading is shown on the grading plan. The amount of fill needed is a small fraction of the total material that needs to be disposed of off-site.
7. The Pre-bid Attendance Sheet is attached for bidder information.
8. The Plan Holders List is attached for bidder information.

Prepared By:
CHA
3 Winners Circle
Albany, NY 12205

Approved:
 4/22/24
Debbie Dillon, Director of Purchasing

END OF ADDENDUM NO. 2

TABLE OF CONTENTS

ADVERTISEMENT FOR BIDS

BIDDERS INSTRUCTIONS

INSURANCE CHECKLIST

GENERAL CONTRACT FORM

BID FORM

ACKNOWLEDGEMENT OF FORMS WITH IRAN DIVESTMENT ACT

BID ENVELOPE FORM

CONSTRUCTION PAYMENT BOND

CONSTRUCTION PERFORMANCE BOND

NOTICE TO PROCEED

DIVISION 1 – GENERAL REQUIREMENTS

Section 011000	Summary
Section 011400	Work Restrictions
Section 012100	Allowances
Section 012300	Alternates
Section 013000	Project Management and Coordination
Section 013200	Construction Progress Documentation
Section 013300	Submittal Procedures
Section 014000	Quality Requirements
Section 015000	Temporary Facilities and Controls
Section 017700	Closeout Procedures
Section 017839	Project Record Documents

LIST TECHNICAL SPECIFICATIONS BELOW

DIVISION 11 – EQUIPMENT

Section 116833	Outdoor Sports Equipment
Section 116833.43	Track and Field Equipment

DIVISION 26 – ELECTRICAL

Section 26001	Electrical
---------------	------------

DIVISION 31 – EARTHWORK

Section 310519.13	Geotextiles
Section 311000	Site Clearing
Section 312000	Earth Moving
Section 312316.26	Rock Removal
Section 312333	Trenching and Backfilling

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 321116 Subbase Courses
Section 321216 Asphalt Paving
Section 321216.36 Athletic Track Asphalt Paving
Section 321613.16 Cast-in-Place Concrete Curbing
Section 321815 Athletic Channel Drain System

DIVISION 32 – EXTERIOR IMPROVEMENTS (continued)

Section 321823.38 Synthetic Running Track Surveying
Section 321823.39 Synthetic Running Track Surfacing
Section 321823.40 Synthetic Running Track Line Markings
Section 321823.41 Synthetic Running Track Certification Survey
Section 323113 Chain Link Fence and Gates
Section 329113 Soil Preparation
Section 329200 Turf and Grasses

DIVISION 33 – UTILITIES

Section 330500 Common Work Results for Utilities
Section 330513 Manholes and Structures

ADVERTISEMENT FOR BIDS
INDIAN TRAIN MIDDLE SCHOOL – TRACK RECONSTRUCTION

Sealed bids for Indian Trail Middle School – Track Reconstruction – (ITB #6763), will be received by the City of Johnson City, Purchasing Director at 209 Water Street, Johnson City, Tennessee 37601 until 2:00pm local time, on MAY 2, 2024 at which time they will be publicly opened and read aloud. Bids received after that time will not be considered. An optional ON-SITE pre-bid will be held 3/20/24 at 11:00 am, local time.

Work shall include, but not be limited to: all equipment, labor, materials and services as required for the conversion of the existing 8 lane track to a new 8x6 lane track with D-zones and throws areas, including Demolition, site grading and rock removal, erosion & sediment control, paving, earthwork, drainage work, water, electric, fencing & gates, end line netting, track surfacing and markings and all work shown on the contract documents to complete the project ready for use.

Project substantial completion shall be within 106 calendar days and final completion shall be within 120 calendar days of contract issue, otherwise penalties apply.

Copies of the bidding documents including drawings and specifications may be obtained from the Johnson City Purchasing Office: 209 Water Street, Johnson City (423) 975-2716. Documents will also be available electronically upon request. Please contact Johnson City Purchasing via email at purchasing@johnsoncitytn.org. **Bids will be accepted from Bidders of Record only (obtained Bidding Documents from Issuing Office).**

All Bidders must be licensed contractors as required by Contractor's Licensing Act 1994 (TCA Title 62, Chapter 6) and all requirements therein. The project requires a 5% Bid Bond, specific insurance and 100% Payment and Performance Bond. Contractors must comply with all Drug Free Requirements.

The City reserves the right to reject any and all bids, to waive informalities, and to accept the bid or bids that are judged to be in the best interest of the City. The City of Johnson City is an Equal Opportunity Employer.



INVITATION TO BID

CITY OF JOHNSON CITY, TENNESSEE

PURCHASING DEPARTMENT

423/975-2715

WWW.JOHNSONCITYTN.ORG/PURCHASING

Bid Name / Number	INDIAN TRAIL MIDDLE SCHOOL TRACK RENOVATIONS PHASE 2 / #6763
Due Day / Date / Time	Thursday / May 2, 2024 / 2:00 PM (at which time it will be opened publicly)
Bid Location / Mail Address	Johnson City Purchasing Department, Debbie Dillon-Director, 209 Water Street, Johnson City, TN 37601
Bid Contact / Telephone	Daniel Deats CHA Companies ddeats@chasolutions.com or purchasing@johnsoncitytn.org
Bid Issue Date	April 2, 2024
Project Location	Indian Trail Middle School, 307 Car-Mol Dr., Johnson City, TN 37601
FOB	Destination, freight prepaid and allowed - Johnson City, TN
Payment Terms	Net 30

Complete all portions of this bid sheet. Pricing shall be on this form to be considered. Use additional sheets if necessary.

ITEM	QTY	DESCRIPTION	TOTAL
1	LUMP SUM	Provide all equipment, labor, materials and services as required to complete the Indian Trail Middle School Track Renovations as per attached specifications and drawings.	\$ _____
2		ADD ALTERNATE #1 – CHAIN LINK FENCING	\$ _____
3		ADD ALTERNATE #2 - RELOCATE ASPHALT PATH	\$ _____
4		ADD ALTERNATE #3 - 8 LANE TRACK	\$ _____
5		SUBTOTAL (LINES 1 THRU 4):	\$ _____
6		SUBTOTAL TOTAL WITH 5% CONSTRUCTION CONTINGENCY	\$ _____
7		\$50,000 ROCK EXCAVATION CONTINGENCY	\$ <u>50,000</u> -----
		GRAND TOTAL (LINES 6 & 7):	\$ _____

Solicitations will be opened publicly via a simultaneous virtual and in-person meeting.

Join Zoom Meeting: [ITB# 6763 ITMS TRACK RENOVATIONS PHASE 2 VIRTUAL BID OPENING](#) ; Meeting ID: 845 2985 1241; Passcode: 586823. If you do not have access to a webcam, or you have no audio with your system, you may call this number to join: (646) 518-9805. Any issues accessing the zoom web meeting please call 423.975.2715 for direct assistance.

Bidder's Reminder: • Bid to be signed by authorized company representative; • Verify prices, extensions and total as correct

ADDENDA ACKNOWLEDGEMENT: _____, _____, _____, _____, _____, _____
By signing this document, the undersigned hereby agrees to the prices and all other terms and conditions, including the attached Sealed Solicitation General Terms & Conditions and the City's Requirements for Bids, Requests for Proposals, and Contracts Between the City of Johnson City and Other Parties and the Requirements of the Iran Divestment Act and Non-Boycott of Israel Act (Sealed Solicitations General Terms & Conditions #19 & #22) contained in this bid and associated documents relating to this bid and will furnish items as specified if this bid is accepted. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder complies pursuant to T.C.A. § 12-12-106 & T.C.A. § 12-4-119.

SUBMITTAL INSTRUCTIONS:
Place signed bid response in a sealed envelope plainly identified on the outside with vendor name and bid name and number. Vendor responsible for delivery to Johnson City Purchasing Dept., Debbie Dillon- Director, 209 Water Street, Johnson City, TN 37601 on or before the bid opening date and time.

Firm Name _____

By _____
PRINTED & SIGNED

Address _____

Telephone _____

E-Mail _____

THIS SHEET MUST BE SIGNED AND RETURNED WITH BID TO BE VALID

SECTION 012300 – ALTERNATES

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Add Alternate No. 1: Add Alternate No. 1 consists of the following: Provide and install 8' high chain link fencing between the track oval and the path along Lambeth Drive; Convert the 8' high chain link fence along Lambeth drive to a 4' high fence; Pave an 8' wide path from the track toward the concession building; Pave the path extension and sidewalk to Lambeth drive.
- B. Add Alternate No. 2: Relocate asphalt path along west end of track and remove timber retaining wall.
- C. Add Alternate No. 3: Track oval to be paved and surfaced with (8) 42" wide oval lanes.

END OF SECTION

ALTERNATES

SECTION 260001 – ELECTRICAL

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. Provide all labor, material, tools, equipment, transportation, and services necessary for and incidental to completion of all electrical work as indicated on the Drawings and/or as specified herein.

1.2 DRAWING USE AND INTERPRETATION

- A. The Drawings are diagrammatic and indicate the general arrangement of systems and equipment unless indicated otherwise by dimensions or details. Exact equipment locations and raceway routing, etc. shall be governed by actual field conditions and/or instructions of the Engineer and/or Owner's Representative.

1.3 COMPLETE SYSTEMS

- A. General: Furnish and install all materials as required for complete systems, including all parts obviously or reasonably incidental to a complete installation, whether specifically indicated or not. All systems shall be completely assembled, tested, adjusted and demonstrated to be ready for operation prior to Owner's acceptance.
- B. Wiring: The wiring specified and/or shown on the Drawings is for complete and workable systems. Any deviations from the wiring shown due to a particular manufacturer's or subcontractor's requirements shall be made at no cost to either the Contract or the Owner.

1.4 CODES AND REGULATIONS

- A. General: Comply with the latest recognized edition of the National Electrical Code (NEC) and all governing federal, state, and local laws, ordinances, codes, rules, and regulations. Where the Contract Documents exceed these requirements, the Contract Documents shall govern. In no case shall work be installed contrary to or below minimum legal standards.
- B. Utilities: Comply with all applicable rules, restrictions, and requirements of the utility companies serving the project site/facilities.
- C. Non-Compliance: Should any work be performed which is found not to comply with any of the above codes and regulations, provide all work and pay all costs necessary to correct the deficiencies.

1.5 REFERENCE STANDARDS

- A. All latest published standards of the following associations/organizations shall be followed and applied where applicable as minimum requirements:
 1. (ADA), Americans with Disabilities Act.
 2. (ANSI), American National Standards Institute.
 3. (ASTM), American Society for Testing and Materials.
 4. (BCNYS), Building Code of New York State.
 5. (CBM), Certified Ballast Manufacturer.
 6. (EPACT), National Energy Policy Act.
 7. (ETL), Electrical Testing Laboratory.

8. (FCNYS), Fire Code of New York State.
9. (ICEA), Insulated Cable Engineers Association.
10. (IEEE), Institute of Electrical and Electronic Engineers.
11. (IESNA), Illuminating Engineering Society of North America.
12. (NBFU), National Board of Fire Underwriters.
13. (NEMA), National Electrical Manufacturers Association.
14. (NESC), National Electrical Safety Code.
15. (NFPA), National Fire Protection Association.
16. (UL), Underwriter's Laboratories.

1.6 PERMITS

- A. General: Obtain and pay for any and all permits required by all applicable agencies, prior to commencing work.

1.7 SUBMITTALS

- A. General: Prepare and submit for approval, per the procedures set forth in Division 1, all submittals required by Division 1, this section, and by all other Contract Documents.
- B. Types: Required submittals may include: Schedule of Values; List of Subcontractors; Product Data; Shop Drawings; Samples; Test Reports; Certifications; Warranties; Maintenance Manuals; Record Drawings; and various administrative submittals.
- C. Number of Copies: As indicated in Division 1, Division 26, or elsewhere in the Contract Documents. For quantities indicated in the Contract Documents or specification sections other than Division 26 sections, increase number of copies by one to allow for the Engineer's record copy. Minimum number of copies per submittal: three.
- D. Product Data: Submit for all basic electrical equipment, devices, and materials to be used on the project. Product data to consist of manufacturer's standard catalog cuts, descriptive literature and/or diagrams, in 8-1/2-inch-by-11-inch format, and in sufficient detail so as to clearly indicate compliance with all specified requirements and standards. Mark each copy to clearly indicate proposed product, options, finishes, etc.
- E. Shop Drawings: Submit for all custom equipment and systems (e.g., panelboards) to be used on the project. Shop Drawings to be newly prepared, specifically for this project, and shall include all information listed in the Shop Drawings submittal requirements in the respective specification section. Include all pertinent information such as equipment/system identification, manufacturer, dimensions, nameplate data, sizes, capacities, types, materials, performance data, features, accessories, wiring diagrams, etc., in sufficient detail so as to clearly indicate compliance with all specified requirements and standards. For control systems, provide computer generated control ladder diagrams specifically developed for this project (standard diagrams not acceptable).
- F. Maintenance Manuals: Include operating and maintenance data in accordance with Division 1. Include all Product Data/Shop Drawing submittals as well as descriptions of function, normal operating characteristics and limitations, and manufacturer's printed operating maintenance, trouble shooting, repair, adjustment, and emergency instructions, and complete replacement parts listing.
- G. Record Documents: Prepare and submit in accordance with Division 1. In addition to Division 1 requirements, indicate actual installed locations for all equipment and devices, routing of major interior raceways, locations of all concealed and underground equipment and raceways, and all

approved modifications to the Contract Documents, and deviations necessitated by field conditions and change orders.

1.8 QUALITY ASSURANCE

- A. Manufacturers' Qualifications: Not less than three years of experience in the actual production of the specified products.
- B. Installers' Qualifications: Firm with not less than five years of experience in the installation of electrical systems and equipment similar in scope and complexity to those required for this Project, and having successfully completed at least ten comparable scale projects.
- C. Incidental Work: Excavation, backfill, painting, patching, welding, carpentry, mechanical work, concrete pads and the like related to or required for Division 26 work shall be performed by craftsman skilled in the appropriate trade, but shall be provided for under Division 26.

1.9 INSPECTIONS

- A. General: During and upon completion of the work, arrange and pay all associated costs for inspections of all electrical work installed under this contract, in accordance with the Conditions of the Contract.
- B. Inspections Required: As per the laws and regulations of the local and/or state agencies having jurisdiction at the project site.
- C. Inspection Agency: Approved by the local and/or state agencies having jurisdiction at the project site.
- D. Certificates: Submit all required inspection certificates.
- E. Coordination: Coordinate inspections with the local utility.

1.10 DELIVERY STORAGE AND HANDLING

- A. Comply with Division 1 requirements.
- B. Packing and Shipping: Deliver products in original, unopened packaging, properly identified with manufacturer's identification, and compliance labels.
- C. Storage and Protection: Comply with all manufacturer's written recommendations. Store all products in a manner, which shall protect them from damage, weather, and entry of debris.
- D. Damaged Products: Do not install damaged products. Arrange for prompt replacement.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Where Specified: Materials and equipment shall be as specified herein and/or as indicated on the Drawings.
- B. General Requirements: All materials and equipment shall be in accordance with the Contract Documents, and to the extent possible, standard products of the various manufacturers, except where

special construction or performance features are called for. All materials and equipment to be new, clean, undamaged, and free of defects and corrosion.

- C. Acceptable Products: The product of a specified or approved manufacturer will be acceptable only when that product complies with or is modified as necessary to comply with all requirements of the Contract Documents.
- D. Common Items: Where more than one of any specific item is required, all shall be of the same type and manufacturer.
- E. UL Listing: All electrical materials and equipment shall be Underwriters' Laboratories (UL) listed and labeled where UL standards and listings exist for such materials or equipment.

2.2 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Refer to the Conditions of the Contract and Division 1.

2.3 SOIL MATERIALS

- A. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, or natural or crushed sand.
- B. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 4 sieve.
- C. Backfill and Fill Materials: Materials complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, and SP, free of clay, rock, or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetable, and other deleterious matter.

2.4 CONCRETE WORK

- A. Concrete:
 - 1. Minimum Strength: 3000 psi at 28 days.
 - 2. Aggregate: 3/4 inch aggregate.
 - 3. Cement: 588 #/cubic yard minimum, Type I or II.
 - 4. Slump: 4 inches maximum.
 - 5. Air: 5 to 7 percent.
- B. Reinforcing: Grade 60 bars, sized as indicated, and 6 inches by 6 inches – W1.4 by W1.4 mesh and other reinforcing as indicated.
- C. Forms: Wood, metal, or other approved materials constructed so as to withstand the forces of the newly placed concrete.
- D. Equipment Pads: Minimum 4 inches thick indoor, 12 inches thick outdoor (with 9 inches below grade), with 1 inch by 45-degree chamfer on all top edges. For on grade installations, provide 12-inch layer of crushed stone beneath pad. For pads to be placed on concrete floors, provide anchors into concrete floor.
 - 1. Comply with equipment manufacturer's specifications and/or utility company requirements.

2.5 RACEWAY SYSTEMS

- A. Raceway Sizing: As required by the NEC (minimum) with oversized raceways as indicated and where required for ease of pulling cable.
 - 1. Minimum conduit size: 3/4 inch, unless indicated otherwise.
- B. Raceway Types: Rigid galvanized steel conduit, electrical metallic tubing (EMT), flexible steel conduit, liquid-tight flexible steel conduit and Schedule 40 heavywall and Schedule 80 extra-heavywall rigid non-metallic (PVC) conduit conforming to applicable ANSI, NEMA and UL standards.
- C. Fittings: All raceway fittings (except for rigid non-metallic conduit) to be steel or malleable iron and UL-listed for the intended application. EMT fittings to be compression type.
- D. Outlet Boxes (Surface Mounted): Cadmium plated cast or malleable iron.
- E. Pull and Junction Boxes, and Wireways: Use as indicated and required. Junction and pull boxes for general indoor use (dry locations) to be of galvanized code gauge steel construction, minimum 4-inch square by 1-1/2 inches deep with screw-on covers. Wireways to be UL listed, sheet steel construction with screw-on covers. For exterior and damp or wet indoor locations, use boxes and wireways approved for such use.
- F. Handholes: Light-weight and high-strength, constructed of fiberglass reinforced polymer concrete, gray color, suitable for use at temperatures down to -50 DegF, and resistant to sunlight, weathering, chemicals and freeze-thaw cycles, with bolt-on cover (with standard logo indicating type of service), and designed for in-grade use in areas with light vehicular traffic (5,000-pound load over a 10-inch by 10-inch area).
 - 1. Acceptable Manufacturers:
 - a. Quazite "Composolite."
 - b. Styles "PC" or "PG."
- G. Pipe Sleeves: Rigid steel conduit or iron pipe.
- H. Conduit Seals: For Cast-in-Place Concrete Applications:
 - 1. Acceptable Manufacturers:
 - a. O-Z/Gedney Type "FSK."
 - b. Thunderline Corp. "Link Seal" with "Link Seal Wall Sleeve."
- I. For Core Drilled and Pre-Cast Opening Applications:
 - 1. Acceptable Manufacturers:
 - a. O-Z/Gedney Type "CSML."
 - b. Thunderline Corp. "Link Seal."
- J. Pull Wires: No. 14 AWG zinc-coated steel monofilament plastic line with 200-pound tensile strength.

2.6 600 VOLT CLASS WIRE

- A. General: All wire and cable shall be constructed in accordance with all applicable ICEA, NEMA and IEEE published standards, and shall be UL-listed and labeled. Single-conductor, 98 percent conductivity, annealed, uncoated copper conductors with 600-volt rated type "THHN/THWN" insulation.

- B. Wire shall be annealed bare copper per ANSI/ASTM B3, UL 83, and Federal Specification JC-30A with 600 volt insulation, be stranded (except for #10 AWG and smaller may be solid), and be minimum size #12 AWG (except for control wiring and signal circuits).
- C. Insulation: Provide THHN/THWN insulation for all conductors except XHHW insulation may be used for conductors #4 and larger.
- D. Ampacity of conductors shall be rated for 75 DegC regardless of temperature of conductor insulation when combining circuits in one conduit. Derate conductors and increase size per NEC when installing multiple circuits in a raceway, utilizing 75 DegC ampacity table.
- E. Connectors: Nylon shell insulated metallic screw-on connectors for #14-10 AWG and bolted pressure or compression type lugs and connectors with insulating covers for #8 AWG and larger.

2.7 WIRING DEVICES

- A. Receptacles (General Use): 125 volt, 20 amp, NEMA 5-20R, duplex type.
 - 1. Acceptable Manufacturers:
 - a. Leviton.
 - b. Arrow-Hart.
 - c. Hubbell.
 - d. Pass and Seymour.
- B. Special Receptacles: As indicated by ratings and/or NEMA configuration.
 - 1. Acceptable Manufacturers:
 - a. Leviton.
 - b. Arrow-Hart.
 - c. Hubbell.
 - d. Pass and Seymour.
- C. Device Color: Brown, unless directed otherwise.
- D. Coverplates (Exterior Locations): Weatherproof cast aluminum or polycarbonate. Receptacles installed in damp or wet locations shall have an enclosure and cover that are weatherproof with the attachment plug inserted or removed per NEC 406.9.

2.8 EQUIPMENT CONNECTIONS

- A. Materials as specified in this section, and as required.

2.9 HANGERS AND SUPPORTS

- A. General: All hangers, supports, fasteners and hardware shall be zinc-coated or of equivalent corrosion resistance by treatment or inherent property, and shall be manufactured products designed for the application. Products for outdoor use shall be hot dip galvanized.
- B. Types: Hangers, straps, riser supports, clamps, U-channel, threaded rods, etc., as indicated and/or required.
- C. Seismic restraints and supports as indicated and/or required.

2.10 ELECTRICAL IDENTIFICATION

- A. Nameplates: Three-layer laminated plastic with minimum 3/16-inch high white engraved characters on black background, and punched for mechanical fastening. Fasteners: self-tapping stainless-steel screws or number 10-32 stainless steel machine screws with nuts and flat and lock washers. Each nameplate on all panelboards and switchgear shall indicate the following:
 - 1. Panel Name.
 - 2. Voltage, Phase, Number of Wires.
 - 3. Source.
- B. Underground Warning Tape: 6-inch wide polyethylene tape, permanently bright colored with continuous-printed legend indicating general type of underground line below and "CAUTION." Colors as follows:
 - 1. Red – Electric.
 - 2. Orange – Communications.
- C. Marking Pens: Permanent, waterproof, quick drying black ink.
 - 1. Acceptable Manufacturers:
 - a. Sanford Fine Point "Sharpie."
 - b. Or equal.
- D. Wire Tags: Vinyl or vinyl-cloth self-adhesive wraparound type indicating appropriate circuit number, etc.
- E. Arc Flash Panelboard Stickers: Provide per NEC 110.16.

2.11 GROUNDING

- A. General: Ground rods, conductors, clamps and connectors, etc., as required.
- B. Ground Rods: Minimum 5/8-inch diameter by 10-foot long copper clad steel.
- C. Welded Connectors: Exothermic process.

2.12 DRY TYPE TRANSFORMERS

- A. General: Transformers shall be UL listed and labeled and meet all applicable NEMA, ANSI, and IEEE standards. Transformers shall be factory assembled, general purpose, ventilated type of size, and electrical characteristics indicated.
- B. Enclosure: Ventilated, drip-proof code gauge steel housing with bolted removable access panels, phosphatized and finished with corrosion inhibiting undercoat and ANSI-61 gray baked enamel. Transformers shall be suitable for mounting on floor or other substantial structure except for 15 KVA size and smaller which shall be suitable for wall mounting.
- C. Core and Coil: Constructed of continuous copper windings and high-grade non-aging, grain-oriented silicon steel core laminations having high magnetic permeabilities and low hysteresis and eddy current losses. Core and coil of units rated 15 KVA or more shall be completely isolated from the enclosure using vibration absorbing mounts and shall have flexible grounding strap connected to the enclosure. Connections to primary and secondary bushing shall be made using fully rated flexible straps.

- D. Insulation System: 220 DegC temperature class for all transformers.
- E. Temperature Rise: Winding temperature rise by resistance limited to 115 DegC for all transformer sizes referenced to 40 DegC ambient temperature. Hot spot temperature shall not exceed 30 DegC above winding temperature rise rating. Case temperature shall not exceed 35 DegC above 40 DegC ambient temperature.
- F. Taps: Two 5 percent FCBN taps for transformer sizes below 30 KVA; and two 2-1/2 percent FCAN and four 2-1/2 percent FCBN taps for transformer sizes 30 KVA and larger; referenced to nameplate voltage.
- G. Noise Levels: Less than ANSI standards and shall meet the following requirements:
 - 1. 15 to 50 kVa: 45 dB.
 - 2. 51 to 150 kVa: 50 dB.
 - 3. 151 to 300 kVa: 55 dB.
 - 4. 301 to 500 kVa: 60 dB.
 - 5. 501 to 700 kVa: 62 dB.
 - 6. 701 to 1000 kVa: 64 dB.
- H. Efficiencies shall be as indicated in the following table:

NEMA CLASS 1 EFFICIENCY LEVELS FOR DRY-TYPE TRANSFORMERS LOW VOLTAGE, 75°C AT 35% OF NAMEPLATE LOAD			
SINGLE-PHASE EFFICIENCY		THREE-PHASE EFFICIENCY	
15 kVA	97.7	15 kVA	97.0
25 kVA	98.0	30 kVA	97.5
37.5 kVA	98.2	45 kVA	97.7
50 kVA	98.3	75 kVA	98.0
75 kVA	98.5	112.5 kVA	98.2
100 kVA	98.6	150 kVA	98.3
167kVA	98.7	225 kVA	98.5
250 kVA	98.8	300 kVA	98.6
333 kVA	98.9	500 kVA	98.7
		750 kVA	98.8
		1000 kVA	98.9

- I. Ratings: KVA rating, voltages, phases, and configuration as indicated.
 - 1. Minimum impedance: 4.5 percent.
- J. Nameplates: The nameplate shall be permanently mounted to the exterior front with permanently etched numbers and letters and shall include the following:
 - 1. KVA size.
 - 2. Primary and Secondary Voltage Ratings.
 - 3. Serial Number.
 - 4. Weight.
 - 5. Composition of Windings (Primary, Secondary).
 - 6. Wiring Diagram.
 - 7. Percent impedance.
 - 8. Taps.

9. Basic Impulse Level.
- K. Acceptable Manufacturers:
 1. General Electric.
 2. Square D.
 3. Cutler-Hammer.
 4. Siemens.
 5. ACME.

2.13 CIRCUIT BREAKERS

- A. General: Molded case with thermal and magnetic trips unless indicated otherwise. Minimum 10,000 amps interrupting capacity for 208V and 240V, 14,000 amps interrupting capacity for 480V and higher ratings as indicated or required.
- B. For Panelboard Mounting: Bolt-on type.
- C. Individually Mounted: NEMA-1 enclosures for indoor application, NEMA-3R for outdoor application, unless indicated otherwise.
- D. Breakers to be added to Existing Panelboards: Same manufacturer, type, and interrupting rating as for the existing breakers in same panelboard.

PART 3 – EXECUTION

3.1 GENERAL

- A. The installation of all electrical work shall be in accordance with the intent of the Contract Documents as determined by the Engineer.
- B. Installation Requirements: All materials and equipment shall be installed as recommended by the respective manufacturers, by mechanics experienced and skilled in their particular trade, in a neat and workmanlike manner, in accordance with the standards of the trade, and so as not to void any warranty or UL listing.
- C. Administration and Supervision: All electrical work shall be performed under the Contractor's direct supervision using sufficient and qualified personnel as necessary to complete the work in accordance with the progress schedule. The Contractor shall assign one or more competent supervisors who shall have authority to accept and execute orders and instructions, and who shall cooperate with the other Contractors and subcontractors, the Engineer, and Owner in all matters to resolve conflicts and avoid delays.

3.2 EXAMINATION

- A. Conditions Verification: Examine the areas and conditions under which the work is to be performed, and identify any conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.3 COORDINATION

- A. General: Sequence, coordinate and integrate the installation of all electrical materials and equipment for efficient flow of work, in conjunction with the other trades. Review to the Drawings for work of the other trades, and report and resolve any discovered discrepancies, prior to commencing work.
- B. Cooperation: Cooperate with the other Contractors and individual disciplines for placement, anchorage, and accomplishment of the work. Resolve interferences between work of other disciplines or Contractors, prior to commencing installation.
- C. Chases, Slots, and Openings: Arrange for chases, slots, and openings during the progress of construction as required to allow for installation of the electrical work.
- D. Supports and Sleeves: Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
- E. Obstacles and Interferences: When installing equipment and raceways, provide offsets, fittings, accessories, and changes in elevation or location as necessary to avoid obstacles and interferences, per actual field conditions.
- F. Space Requirements: Electrical equipment sizes indicated on the Drawings are generally based on specified manufacturer. Verify that the proposed equipment will fit in the space indicated on the drawings. Maintain clearances required by NEC.

3.4 DIMENSIONS

- A. Building Dimensions: For exact locations of building elements, refer to dimensioned drawings. However, field measurements take precedence over dimensioned drawings.
- B. Site Dimensions: Field measurements take precedence over scaled electrical site plans.
- C. Limiting Dimensions: Equipment outlines shown on detail drawings of 1/4" = 1'-0" scale or larger and dimensions indicated on the Drawings are limiting dimensions. Do not install equipment exceeding dimensions indicated by outlines on Drawings or equipment or arrangements that reduce indicated clearances.
- D. Establish the exact location of electrical equipment based on the actual field verified dimensions of equipment furnished.

3.5 EQUIPMENT PROTECTION

- A. Protect all electrical equipment, and materials and work from the weather elements, paint, mortar, construction debris and damage until project is substantially complete. Repair, replace, and clean all electrical work so affected.

3.6 ELECTRICAL INSTALLATION - GENERAL

- A. Unfinished and Finished Areas: For the purposes of these electrical specifications, "unfinished" areas shall include mechanical, electrical and telephone equipment rooms. All other areas shall be considered "finished" spaces unless indicated or approved otherwise.
- B. In Unfinished Areas: Raceways, equipment, and devices may be installed concealed or exposed unless indicated otherwise.

- C. In Finished Areas: Conceal all raceway and flush mount all electrical boxes, equipment, and devices unless indicated or approved otherwise. The space above suspended ceilings or behind furred spaces is considered outside finished areas and electrical materials installed within these areas are considered concealed.
- D. Minimum Mounting Height: Install exposed raceway and all other electrical equipment (e.g., lighting fixtures) with not less than 7 feet and 6 inches clear to finished floor unless indicated or approved otherwise, and excluding raceway and equipment mounted on walls.
- E. Dimensions and Clearances: Field measure all dimensions and clearances affecting the installation of electrical work in relation to established datum, building openings and clearances, and work of other trades as construction progresses.
- F. Rough-In Locations: Verify final locations for rough-ins with field measurements and requirements of actual equipment being installed.
- G. Door Swings: Verify the swings of all doors before switch outlets or other electrical devices are installed. If necessary, relocate devices so they are not obstructed by doors when doors are open.
- H. Ceiling Mounted Devices: The locations indicated on the architectural reflected ceiling plans take precedence over the electrical documents, in the event of conflict.
- I. Install equipment according to manufacturer's written instructions.
- J. Install equipment, conduit, cable tray, hangers, and supports to withstand seismic forces for the seismic zone of the installation.

3.7 LAYOUT

- A. General: Install electrical systems, materials and equipment level and plumb, and parallel and perpendicular to other building systems and components, where installed exposed.
- B. Serviceability: Install electrical equipment and raceways, etc., to readily facilitate servicing, maintenance, and repair or replacement of components and so as to minimize interference with other equipment and installations.
- C. Clearances: Prior to commencing work, verify that all electrical equipment will adequately fit and conform to the indicated and code required clearances in the spaces indicated on the Drawings. If rearrangement is required, submit plan and elevation drawings or sketches indicating proposed rearrangement for the Engineer's approval. Do not rearrange without express written permission of the Engineer.
- D. Right-Of-Way: When laying out electrical work, give priority in available space to steam and condensate lines, sanitary lines, drain lines, fire protection piping, and sheet metal duct work. Provide offsets as required to avoid conflicts. Resolve all conflicts before commencing installation.

3.8 MOUNTING HEIGHTS

- A. General: Indicated heights are measured from the center of the device outlet box to finished floor or grade, unless indicated otherwise. Request instructions for mounting heights not indicated.

3.9 HOLES, SLEEVES, AND OPENINGS

- A. General: Provide all holes, sleeves, and openings required for the completion of Division 26 work and restore all surfaces damaged to match surrounding surfaces. Maintain integrity of all fire and smoke rated barriers using approved firestopping systems. When cutting holes or openings, or installing sleeves, do not cut, damage, or disturb structural elements or reinforcing steel unless approved in writing by the Project Structural Engineer.

Conduit Penetrations: Size core drilled holes so that an annular space of not less than 1/4 inch and not more than 1 inch is left around the conduit. When openings are cut in lieu of core drilled, provide sleeve in rough opening. Size sleeves to provide an annular space of not less than 1/4 inch and not more than 1 inch around the conduit. Patch around sleeve to match surrounding surfaces.

3.10 CUTTING AND PATCHING

- A. General: Provide all cutting, drilling, chasing, fitting, and patching necessary for accomplishing the work of Division 26, which includes any and all work necessary to: uncover work to provide for the installation of ill-timed work; remove and replace defective work and work not conforming to the requirements of the Contract Documents; and install equipment and materials in existing structures, in addition to that required during the normal course of construction.
- B. Comply with the cutting and patching requirements of Division 1.
- C. Building Structure: Do not endanger the integrity of the building structure by cutting, drilling, or otherwise modifying any structural member without specific approval. Do not proceed with any structural modifications without written permission of the Project Structural Engineer.
- D. Repairs: Repair any and all damage to work of other trades caused by cutting and patching operations using skilled mechanics of the trades involved.

3.11 WELDING

- A. General: Where welding is required, such welding shall be performed in a skilled manner by certified welders. Verify that welds are free from cracks, craters, undercuts, and strikes, weld spatter, and any other surface defects. Clean and re-weld any welds deemed unacceptable in size or configuration. Do not weld to structural steel without prior written permission from the Project Structural Engineer.

3.12 UNDERGROUND ELECTRICAL WORK

- A. General: Perform all excavating, trenching, backfilling, etc., as indicated or required for the installation of all underground electrical work. Coordinate work with other trades and verify existing underground services and conditions.
- B. Conduit Burial Depth: 30 inches below finished grade or 6 inches below bottom of frost line, whichever is deeper, unless indicated otherwise. All excavation and burial depths indicated are below finished grade.
- C. Excavating: Do not excavate below required depth except as necessary for removal of unstable soil or when rock is encountered. When rock is encountered, excavate 6 inches below the required depth and backfill with a minimum 6-inch layer of crushed stone or gravel between rock bearing surface and the electrical installation. Stockpile satisfactory excavated materials where directed until required for backfilling. Remove and legally dispose of excess excavated materials and materials not suitable for backfill use. Shore and brace as required for stability of excavation. Remove shoring

and bracing when no longer required. Where sheeting is allowed to remain, cut top of sheeting off at an elevation of 30 inches below finished grade.

- D. Protection: Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavations.
- E. Existing Utilities: Remove existing electrical and other utility lines so indicated. Where existing utilities, which are to remain, exist within areas of excavation, locate such utilities and support and protect during excavation operations.
- F. Trenching: Cut all trenches neatly and uniformly and so as to provide ample working room and at least six inches clearance on both sides of raceways, etc., unless otherwise noted. Take necessary precautions when working near existing underground utilities, and coordinate with the installation of concurrent utilities by other trades. Unless indicated otherwise, pitch all electrical conduit runs downward away from buildings, manholes, and pad mounted equipment. Excavate trenches to depth indicated or required. Limit length of open trench to that in which installations can be made and trenches backfilled within the same day.
- G. Sand Envelope: Install a minimum envelope of 3 inches (top, bottom, and sides: 3 inches each) of fine grain sand around all electrical cables and conduits installed below grade unless indicated otherwise.
- H. Preparation for Backfilling: Backfill excavations as promptly as work permits but not until completion of inspection, testing, approvals, and recording of underground utility locations. Prior to backfilling, remove all concrete form work, shoring, bracing, trash, and debris.
- I. Backfilling: Use only approved materials free from boulders, sharp objects, and other unsuitable materials. Match the final elevations and materials of areas affected by electrical excavating, trenching, and backfilling. Replace conduit and cables damaged by improper backfilling. Replace surface materials to match existing surface materials if no other utility or site work is being done in area. Place specified soil materials in 4- to 8-inch layers to required subgrade elevations for area classifications as follows:
 - 1. Under Sidewalks: Use combination of subbase materials and excavated or borrowed materials.
 - 2. Under Building Slabs: Use drainage fill materials.
 - 3. Under Piping and Equipment: Use subbase materials where required over rock bearing surfaces and for correction of unauthorized excavation.
 - 4. For Raceways Less than 30 inches below Surface of Paved Areas or Roadways: Provide 4-inch thick concrete base slab support. After raceway installation, provide 4-inch thick concrete encasement (sides and top) prior to backfilling and placement of roadway subbase. Refer to Contract Documents for Conduit Encased in Concrete Details.
- J. Backfill Placement: Place backfill and fill materials in layers of not more than 8 inches in loose depth for material compacted by heavy equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification specified below. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Place backfill and fill materials evenly adjacent to structures, piping, and equipment to required elevations. Prevent displacement of raceways and equipment by carrying material uniformly around them to approximately same elevation in each lift.

- K. Compaction: Control soil compaction during construction, providing minimum percentage of density specified for each area classification indicated below.
- L. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density for soils, which exhibit a well-defined, moisture-density relationship (cohesive soils), determined in accordance with ASTM D1557 and not less than the following percentages of relative density, determined in accordance with ASTM D2049, for soils, which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
 - 1. Areas under Structures, Building Slabs and Steps, Pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive materials and 95 percent relative density for cohesionless materials.
 - 2. Areas Under Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive materials and 95 percent relative density for cohesionless materials.
 - 3. Other Areas: Compact top 6 inches of subgrade and each layer of backfill or fill material to 85 percent maximum density for cohesive materials and 90 percent relative density for cohesionless materials.
- M. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water. Apply water in minimum quantity necessary to achieve required moisture content and to prevent water appearing on surface during, or subsequent to, compaction operations.
- N. Subsidence: Where subsidence occurs at electrical installation excavations during the period 12 months after Substantial Completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.

3.13 CONCRETE WORK

- A. General: All concrete shall be prepared from approved materials and poured on clean, stable surfaces.
- B. Exterior Base Surfaces: 12-inch layer of crushed stone over well-consolidated, stable, undisturbed soil. Where the underlying soil contains excess organic material, trash or voids, or fails to provide solid bearing for any other reason, excavate to the depth required for solid bearing and re-establish the required elevation with approved granular materials.
- C. Finishing: Trowel all exposed surfaces smooth. Round-off or chamfer all exposed edges.
- D. Curing: Beginning immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury. Maintain minimal moisture loss at relatively constant temperature throughout period necessary for hydration of cement and hardening of concrete.

3.14 RACEWAY SYSTEMS

- A. Raceway Types: Unless indicated otherwise, use raceway types as follows:
 - 1. Outdoors, Below Grade: (Minimum 1 inch size). Schedule 40 rigid non-metallic conduit. Stub up using rigid galvanized steel elbows.
 - 2. Outdoors, Exposed: Rigid galvanized steel conduit.
 - 3. Liquid-Tight Flexible Steel Conduit: Use where flexible steel conduit connections are required in damp, wet, or oily locations, and for final connections to all motors and similar equipment.

- B. Raceway Routing: As required by job conditions unless specific routes or dimensioned positions are indicated on the Drawings. Install tight to slabs, beams, and joists wherever possible. Route exposed conduit, and conduit installed above ceilings, parallel or perpendicular to walls ceilings and structural members. Install to maintain minimum headroom and to present a neat appearance. Run parallel raceways together with bends made from same center line. Verify exact locations of all raceways, pull boxes, and junction boxes. Resolve any conflicts before installation.
- C. Raceway Installation: Cut conduit ends square using saw or pipecutter and ream each cut end smooth. Carefully make all conduit bends and offsets so that the inside diameter of pipe is not reduced. Make bends so that legs are in the same plane. Make offsets so that legs are in the same plane and parallel. Protect stub-ups from damage, and carefully rebend when necessary.
- D. Fittings: Make up all raceway fittings tight so that final installation of raceway, fittings and enclosures constitutes a firm mechanical assembly and a continuous electrical conductor. Where required, provide bonding jumpers to assure electrical continuity.
- E. Protection: Protect all raceways, enclosures, and equipment during construction to prevent entry of concrete, debris and other foreign matter. Free clogged conduits of all obstructions, or replace, prior to pulling wire. Do not pull wire within buildings until buildings are completely enclosed.
- F. Boxes: Install all outlet, pull, and junction boxes rigidly, plumb, and level. Support and secure boxes independently from conduits terminating at box. Install all boxes so as to be accessible and so that covers may be easily removed.
- G. Handholes: Provide as indicated, installed plumb and level. Where not indicated, install every 200 feet at a minimum.
- H. Conduit Seals: Install conduit seal for each conduit penetrating an exterior building wall below grade (unless penetration is below lowest building floor slab) and elsewhere as indicated, and so as to achieve a sealed watertight installation.
- I. Pull Strings: Provide pull strings in all spare conduits.

3.15 CONDUCTORS - 600 VOLT AND BELOW

- A. Minimum Conductor Size: All branch circuit wiring shall be minimum #12 AWG. All control circuit wiring shall be minimum #14 AWG unless indicated otherwise. Provide larger sizes as indicated or required.
- B. Branch Circuit Conductor Sizes: Provide branch circuit conductor sizes as indicated on the panelboard schedules, plans, or elsewhere. Neutral conductor size to match phase conductors unless indicated otherwise. Provide branch circuit switch legs and travelers as required for the switching indicated.
- C. Equipment Grounding Conductor Required: For each branch circuit and feeder run, provide an equipment grounding conductor for continuous length of run, sized per NEC 250-122 (minimum), larger if so indicated.
- D. Feeders: Provide feeder conductor sizes and quantities as indicated.
- E. In Raceway: Install all wiring in conduit or other specified raceway unless indicated otherwise.
- F. Terminations: Furnish and install terminations including lugs (if necessary) to make all electrical connections indicated or required. Make connections and terminations for all stranded AWG

conductors using crimp, clamp, or box-type connectors and terminators. Enclose all strands of stranded conductors in connectors, and lugs.

- G. Color: Conductors #10 and smaller shall be factory color-coded by integral pigmentation with a separate color for each phase and neutral. #8 and larger shall have stripes, bands, hash marks, or color pressure-sensitive plastic tape. Color code all branch circuit and feeder conductors as follows:

1. 208/120 Volts:

PHASE	COLOR
A	Black
B	Red
C	Blue
Neutral	White

2. 480/277 Volts:

PHASE	COLOR
A	Brown
B	Orange
C	Yellow
Neutral	Gray

3. Equipment Grounding Conductors: Green

- H. Phase Arrangement: Arrange phases in all electrical equipment as follows:

1. A, B, C: Front to Rear.
2. A, B, C: Top to Bottom.
3. A, B, C: Left to Right when facing established front of equipment.

- I. Provide conductors with not less than 90 DegC rated insulation when branch circuit wiring is attached to high temperature light fixtures (e.g., fluorescent and HID), boilers, incinerators, ovens, ranges, kitchen exhaust fans, other heat-producing equipment, and “100 percent rated” overcurrent protective devices. Use special higher temperature wire as required for connection to specialty equipment as required by equipment manufacturer.

3.16 EQUIPMENT CONNECTIONS

- A. Connect complete, all equipment requiring electrical connections, furnished as part of this Contract or by others unless indicated otherwise.
- B. Equipment Variations: Note that equipment sizes and capacities as shown on the Contract Documents are for bidding purposes and as such may not be the exact unit actually furnished. Contractor shall anticipate minor variations in equipment and shall include in his Bid all costs required to properly connect the equipment actually furnished.
- C. Verification: Obtain and review shop drawings, product data, and manufacturer’s instructions for equipment furnished by others. Examine actual equipment to verify proper connection locations and requirements.
- D. Coordination: Sequence electrical rough-in and final connections to coordinate with installation and start-up schedule and work by other trades.

- E. Rough-In: Provide all required conduit, boxes, fittings, wire, connectors, miscellaneous accessories, etc., as necessary to rough in and make final connections to all equipment requiring electrical connections. In general, motors and equipment shall be wired in conduit to a junction box (or safety switch) near the unit, and from there to the unit in flexible metal or liquid-tight flexible steel conduit.
- F. Connections: Provide properly sized overload and short circuit protection for all equipment connected, whether furnished under this Contract or by others. Verify proper connections with manufacturer's published diagrams and comply with same. Verify that equipment is ready for electrical connections, wiring, and energization prior to performing same.
- G. Control Wiring: Provide all control wiring to remote devices or equipment as indicated or required. Modify equipment control wiring, install or disconnect jumpers, etc., as required.

3.17 HANGERS AND SUPPORTS

- A. General: Rigidly support and secure all electrical materials, raceway, and equipment to building structure using hangers, supports, and fasteners, suitable for the use, materials and loads encountered. Provide all necessary hardware.
- B. Overhead Mounting: Attach overhead mounted equipment to structural framework or supporting metal framework. Do not make attachments to steel roofing, steel flooring, or ceiling mineral tile.
- C. Wall Mounting: Support wall mounted equipment by masonry, concrete block, metal framing, or sub-framing.
- D. Exterior Walls: Mount all electrical equipment located on the interior of exterior building walls at least 1 inch away from wall surface using suitable spacers.
- E. Structural Members: Do not cut, drill, or weld any structural member.
- F. Independent Support: Do not support electrical materials or equipment from other equipment, piping, ductwork, or supports for same.
- G. Temporary Conditions: Do not attach to or support electrical work from removable or knockout panels or temporary walls or partitions.
- H. Raceway Supports: Rigidly support all raceway with maximum spacings per NEC and so as to prevent distortion of alignment during pulling operation. Use approved hangers, clamps, and straps for individual runs. Do not use perforated straps or tie wires. Where multiple parallel raceways are run together, use trapeze type hanger arrangement made from U-channel and accessories, suspended by threaded rods, and allow at least 25 percent spare capacity for future installation of additional raceways. Rigidly anchor vertical conduits serving floor-mounted or "island" type equipment mounted away from walls with metal bracket or rigid steel conduit extension secured to floor.
- I. Miscellaneous Supports: Provide any additional structural support steel brackets, angles, fasteners, and hardware as required to adequately support all electrical materials and equipment.
- J. Seismic restraints and supports: Provide as indicated and/or as required per seismic zone indicated.

3.18 ELECTRICAL IDENTIFICATION

- A. General: Locate nameplate, marking, or other identification means on outside of equipment or box front covers when above ceilings and when in mechanical or electrical equipment rooms or other

unfinished areas, and on inside of front cover when in finished rooms/areas. Use Contract Document designations for identification unless indicated otherwise.

- B. Nameplates: Provide nameplate engraved with equipment designation for each safety switch, panelboard, transformer, motor starter, and all other electrical cabinets, etc.
- C. Underground Warning Tape: During trench backfilling for each underground electrical, telephone, signal, and communications line, provide a continuous underground warning tape located directly above line at 6 to 8 inches below finished grade.
- D. Marking Pen Labeling: Mark each junction and pull box indicating source designation and circuit number(s) for the enclosed conductors.
- E. Wire Tags: For power circuits, apply wire tag indicating appropriate circuit or feeder number to each conductor present in distribution panel and panelboard gutters, and to each conductor in pull and junction boxes where more than one feeder or multi-wire branch circuit is present. Where only a single feeder or multi-wire branch circuit is present, box cover labeling and conductor color coding is sufficient. For control, communications, and signal circuits, apply wire tag indicating circuit or termination number at all terminations and at all intermediate locations and boxes where more than one circuit is present.
- F. Panelboard Circuit Directories: At completion of project, accurately complete each panelboard circuit directory card, identifying load served or "spare" or "space" for each circuit pole. When modifying, adding or deleting circuits at an existing panelboard, update the existing (or provide new) circuit directory card to accurately reflect final conditions.
- G. Abandoned Equipment: Label all abandon equipment as "Abandon as of _____." For conduits and conductors, include opposite end location.

3.19 GROUNDING

- A. General: Provide all system and equipment grounding as indicated and required by the NEC.
- B. Equipment Grounding: Provide a green equipment grounding conductor, sized per NEC 250-122 (larger if so indicated), with each feeder and branch circuit run.
- C. Provide exothermic welded connections where indicated.

3.20 DRY TYPE TRANSFORMERS

- A. Mounting: Install transformers on floors or walls, or suspend from building structure as indicated with mounting provisions, supporting means and methods as required for the weights and types of building construction encountered, and in compliance with all building and seismic codes. All floor mounted transformers to be set on 4-inch high concrete housekeeping pads.
- B. Conduit Connections: Make all conduit connections to transformer cases using flexible metal conduit.
- C. Ventilation Openings: Do not obstruct transformer ventilation openings.
- D. Taps: Set transformer taps for proper secondary voltage.

3.21 SAFETY SWITCHES

- A. Mount securely at the location indicated on the Drawings.
- B. Provide fuses as required.

3.22 CHECKOUT, TESTING, AND ADJUSTING

- A. General: Provide testing equipment, materials, instruments, and personnel to perform all test procedures and adjustments required by the Contract Documents and/or deemed necessary by the Engineer to establish proper performance and installation of electrical systems and equipment. All test instruments to be accurately calibrated and in good working order.
- B. Scheduling: Schedule tests at least three days in advance, and so as to allow Engineer and Owner representative(s) to witness the test, unless directed otherwise. Do not schedule tests until the system installation is complete and fully operational unless indicated or directed otherwise.
- C. Manufacturer's Authorized Representatives: For all new and modified systems and equipment, arrange and pay for the services of the manufacturer's authorized representative(s) to be present at time of equipment or system start-up, to supervise the start-up, and to conduct and/or certify all required testing and adjusting.
- D. Test Reports: Submit test reports neatly typewritten on 8-1/2-inch-by-11-inch sheets indicating system or equipment being tested, methodology of testing, date, and time of test, witnesses of test, and test results. Submit test reports in three (3) copies to the Engineer for review within five (5) days after test is performed, and include a copy with the appropriate operation and maintenance data.
- E. Correction/Replacement: After testing, correct any deficiencies, and replace materials and equipment shown to be defective or unable to perform at design or rated capacity. Retest without additional cost to the Owner or Contract. Submit finalization report indicating corrective measures taken and satisfactory results of retest.

3.23 SYSTEMS DEMONSTRATION

- A. Instruct the Owner's representative(s) in the start-up, operation, and maintenance of all electrical systems and equipment in accordance with Division 1 and as requested by the Owner's Representative.

3.24 CLEANING AND TOUCH-UP PAINTING

- A. Perform cleaning required by Division 1.
- B. General: Periodically remove from the project site, all waste, rubbish, and construction debris accumulated from construction operations, and maintain order. The premises shall be left clean and free of any debris and unused construction materials prior to final acceptance.
- C. Electrical Equipment: Remove all dust, dirt, debris, mortar, wire scraps, rust, and other foreign materials from the interior and exterior of all electrical equipment and enclosures, and wipe down. Clean accessible current carrying elements and insulators prior to energizing.
- D. Light Fixtures: Thoroughly clean all new or relocated light fixtures and lamps, just prior to final inspection. Fixture enclosures, reflectors, lenses, etc., shall be cleaned free of dust, dirt, fingerprints, etc., by an approved method.

- E. Touch-Up Painting: Restore and refinish to original condition, all surfaces of electrical equipment scratched, marred, and/or dented during shipping, handling, or installation. Remove all rust, and prime and paint as recommended by the manufacturer.

END OF SECTION



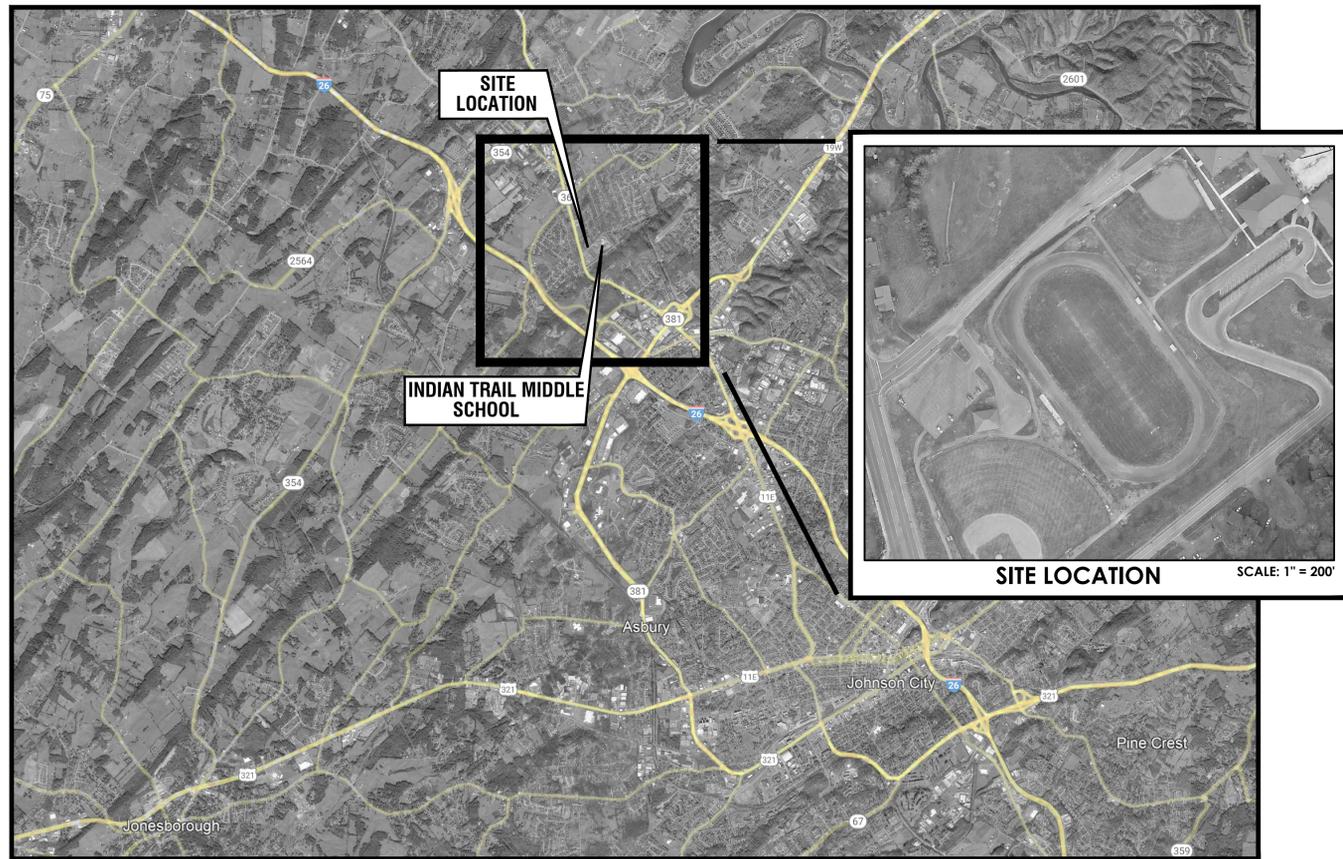
Indian Trail Middle School Track

Bid Set

April 3, 2024

Indian Trail Middle School Track Reconstruction

Sheet Index



SITE VICINITY MAP
SCALE: 1"=1000'

STORM WATER UTILITY
TOTAL DISTURBANCE: 1.77ACRES
TOTAL IMPERVIOUS: 67,500 S.F.

Sheet List Table	
SHEET NUMBER	SHEET TITLE
G-000	COVER SHEET
C-001	EXISTING CONDIITONS PLAN
C-010	DEMOLITION PLAN
C-100	OVERALL LAYOUT PLAN
C-100B	OVERALL LAYOUT PLAN -ALTERNATE 3-
C-101	TRACK OVAL & D-ZONE LAYOUT PLAN
C-201	TRACK GRADING PLAN
C-201B	TRACK GRADING PLAN -ALTERNATE 3-
C-301	TRACK DRAINAGE PLAN
C-401	TRACK UTILITY PLAN
C-501	EROSION & SEDIMENT CONTROL PLAN -- PHASE 1
C-502	EROSION & SEDIMENT CONTROL PLAN -- PHASE 2
C-503	EROSION AND SEDIMENT CONTROL NOTES
C-504	EROSION AND SEDIMENT CONTROL DETAILS
C-601	SITE DETAILS
C-602	SITE DETAILS
C-603	SITE DETAILS

OWNER AND DEVELOPER:
CITY OF JOHNSON CITY
P O BOX 2150
JOHNSON CITY, TN 37601

PREPARED BY:
CHA CONSULTING, INC.
1321 MURFREESBORO PIKE
SUITE 125
NASHVILLE, TN 37217
PHONE: (615) 377-1320
DDEATS@CHACOMPANIES.COM

PROPERTY INFORMATION:
CITY OF JOHNSON CITY, TN PROPERTY
CONTROL MAP: 029K
PARCEL: 039.00
ACREAGE: 35.9



INDIAN TRAIL
MIDDLE SCHOOL

JOHNSON CITY,
TENNESSEE



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION ALTERED BY FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

INDIAN TRAIL MIDDLE
SCHOOL TRACK
RECONSTRUCTION

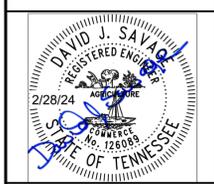
307 CAR-MOL DR.
JOHNSON CITY, TN 37601

No.	Submittal / Revision	App'd.	By	Date
1	BID DOCUMENTS	TM	DS	4/3/24

COVER SHEET

Designed By:	Drawn By:	Checked By:
TM	TM	DD
Issue Date:	Project No:	Scale:
04/3/2024	080051	AS SHOWN

Drawing No.:
G-000



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM OR ANY PART OF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

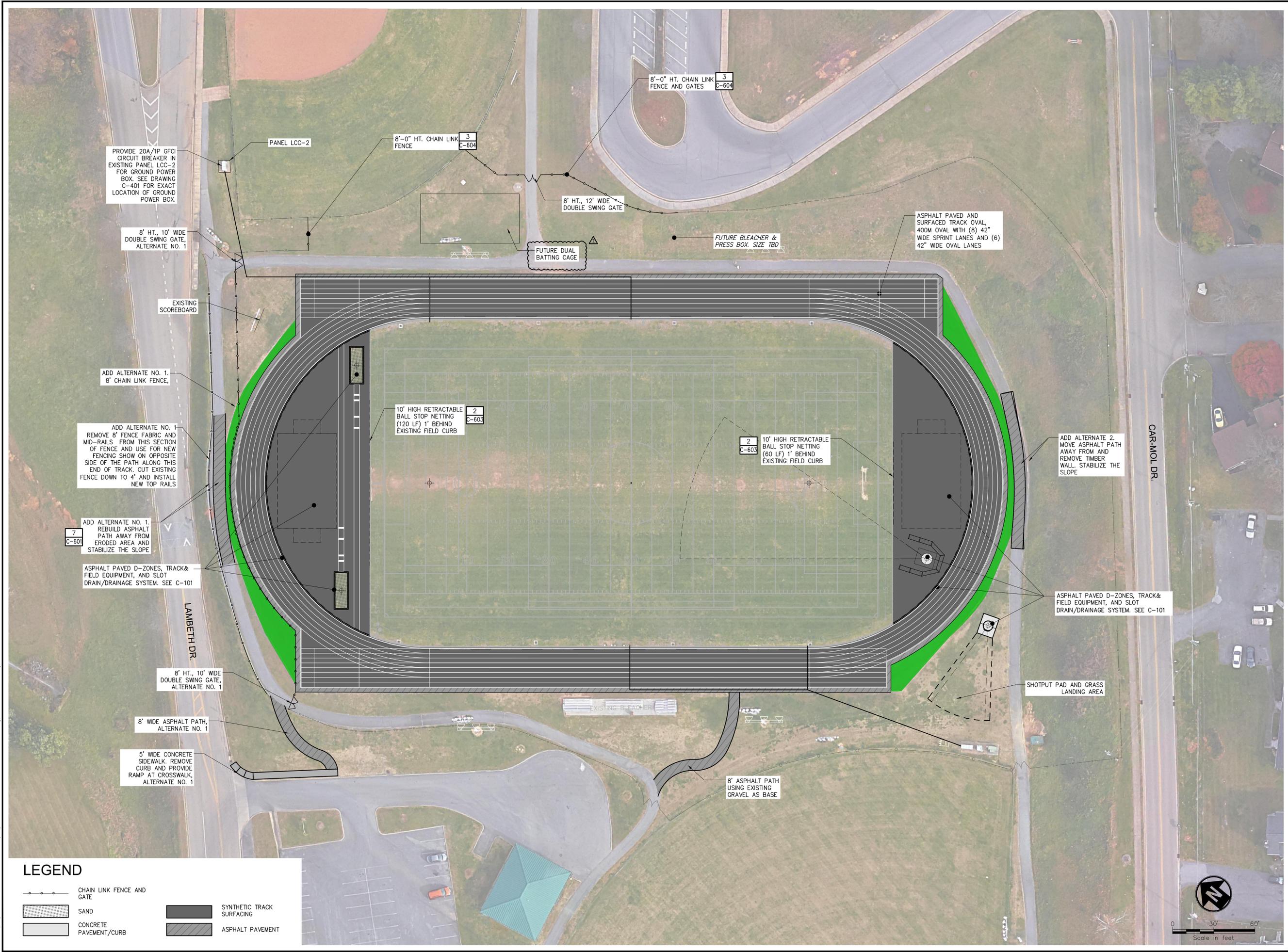
**INDIAN TRAIL MIDDLE
SCHOOL TRACK
RECONSTRUCTION**
307 CAR-MOL DR.
JOHNSON CITY, TN 37601

No.	Submittal / Revision	App'd.	By	Date
1	BID DOCUMENTS	TM	DS	4/3/24

**OVERALL LAYOUT
PLAN**

Designed By: TM	Drawn By: TM	Checked By: DD
Issue Date: 04/3/2024	Project No: 080051	Scale: AS SHOWN

Drawing No.:
C-100



LEGEND

	CHAIN LINK FENCE AND GATE		SAND
	CONCRETE PAVEMENT/CURB		SYNTHETIC TRACK SURFACING
	ASPHALT PAVEMENT		

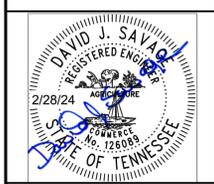


File: \\CHA-LFP-COM\PROJ\PROJECTS\ANY\6\080051\080051\DESIGN\DRAWINGS\01_SHEETS\TRACK PLANS\C-100-080051.DWG
 Saved: 4/19/2024 11:16:30 AM PictDate: 4/22/2024 8:53:28 AM Current User: Kinney, James LastSavedBy: 6052



**INDIAN TRAIL
 MIDDLE SCHOOL**

**JOHNSON CITY,
 TENNESSEE**



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM OR ANY ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

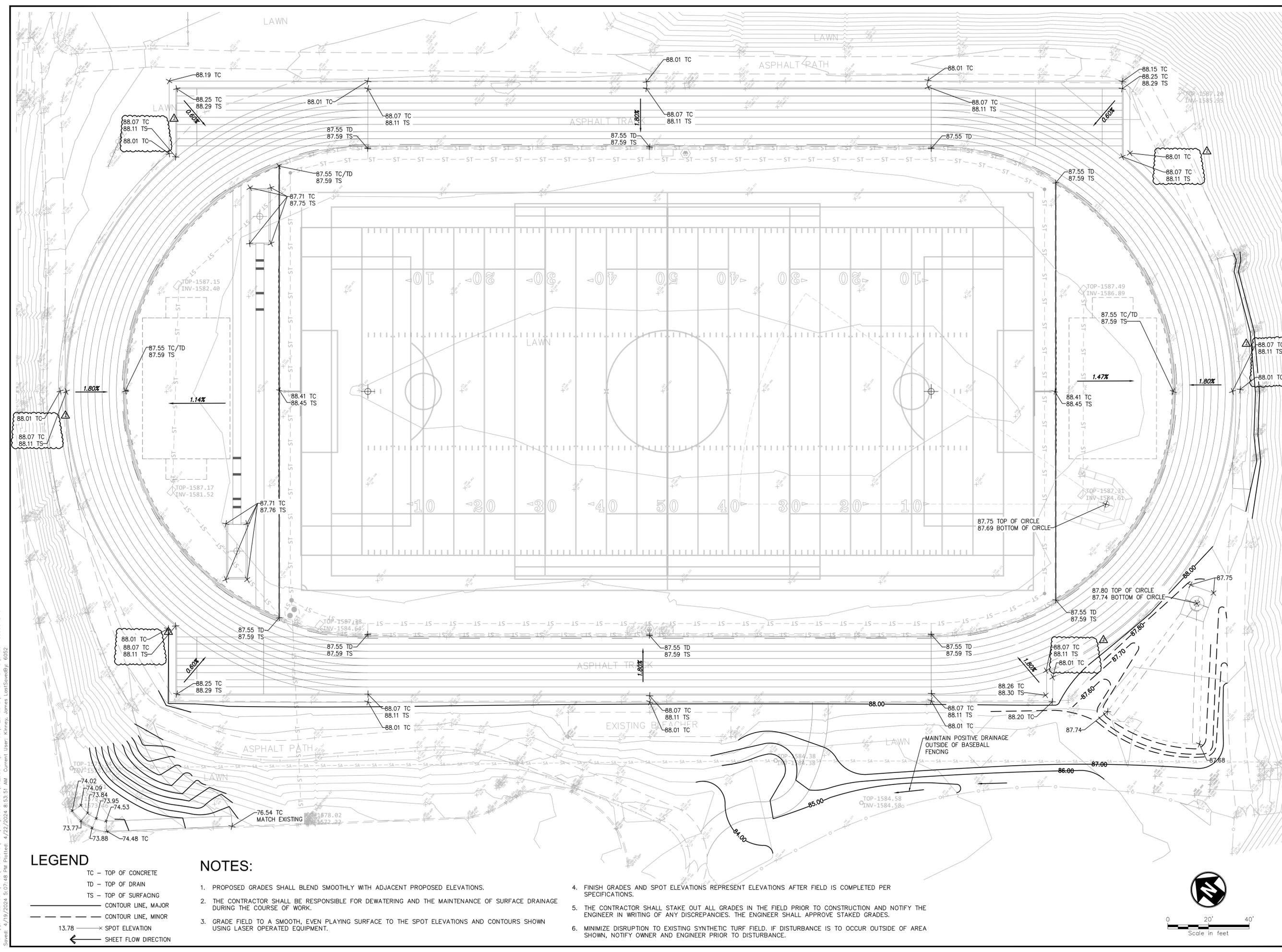
**INDIAN TRAIL MIDDLE
 SCHOOL TRACK
 RECONSTRUCTION**
 307 CAR-MOL DR.
 JOHNSON CITY, TN 37601

No.	Submittal / Revision	App'd. By	Date
1	ITB# 6763 ADDENDUM 2	TM DS	4/22/24
1	BID DOCUMENTS	TM DS	4/3/24

**TRACK GRADING
 PLAN -ALTERNATE 3-**

Designed By: TM	Drawn By: TM	Checked By: DD
Issue Date: 04/3/2024	Project No: 080051	Scale: AS SHOWN

Drawing No.:
C-201B



LEGEND

- TC - TOP OF CONCRETE
- TD - TOP OF DRAIN
- TS - TOP OF SURFING
- CONTOUR LINE, MAJOR
- - - CONTOUR LINE, MINOR
- 13.78 - SPOT ELEVATION
- ← SHEET FLOW DIRECTION

NOTES:

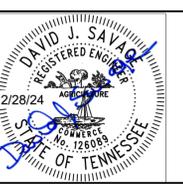
- PROPOSED GRADES SHALL BLEND SMOOTHLY WITH ADJACENT PROPOSED ELEVATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK.
- GRADE FIELD TO A SMOOTH, EVEN PLAYING SURFACE TO THE SPOT ELEVATIONS AND CONTOURS SHOWN USING LASER OPERATED EQUIPMENT.
- FINISH GRADES AND SPOT ELEVATIONS REPRESENT ELEVATIONS AFTER FIELD IS COMPLETED PER SPECIFICATIONS.
- THE CONTRACTOR SHALL STAKE OUT ALL GRADES IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES. THE ENGINEER SHALL APPROVE STAKED GRADES.
- MINIMIZE DISRUPTION TO EXISTING SYNTHETIC TURF FIELD, IF DISTURBANCE IS TO OCCUR OUTSIDE OF AREA SHOWN, NOTIFY OWNER AND ENGINEER PRIOR TO DISTURBANCE.

File: \\CHA-LFP-COM\PROJ\PROJECTS\ANY\080051_000\08_DESIGN\DRAWINGS\01_SHEETS\TRACK PLANS\C-201-080051.DWG
 Saved: 4/19/2024 5:07:48 PM Plotted: 4/22/2024 8:53:51 AM Current User: Kinney, James LastSavedBy: 6052



INDIAN TRAIL
MIDDLE SCHOOL

JOHNSON CITY,
TENNESSEE



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE
ACTIVE UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL
ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND
OWNER TO ALTER AN ITEM IN ANY MANNER IF AN ITEM BEARING THE
STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING
ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND
OWNER SHALL STAMP THE DOCUMENT AND INCLUDE THE
NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE
DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION
OF THE ALTERATION.

INDIAN TRAIL MIDDLE
SCHOOL TRACK
RECONSTRUCTION

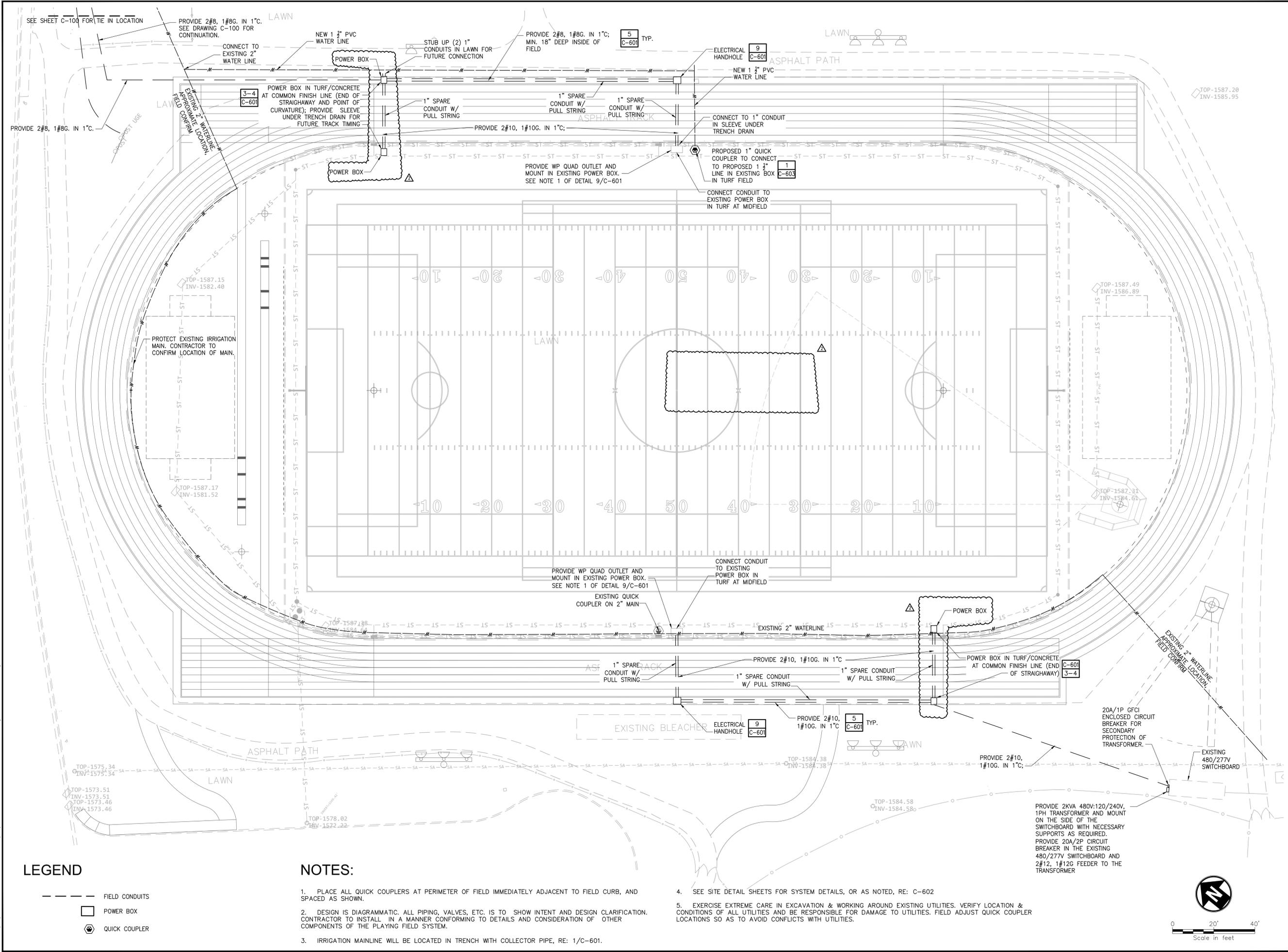
307 CAR-MOL DR.
JOHNSON CITY, TN 37601

No.	Submittal / Revision	App'd. By	Date
1	BID DOCUMENTS	TM DS	4/3/24

TRACK UTILITY PLAN

Designed By: TM	Drawn By: TM	Checked By: DD
Issue Date: 04/3/2024	Project No: 080051	Scale: AS SHOWN

Drawing No.:
C-401

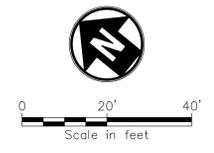


LEGEND

- FIELD CONDUITS
- POWER BOX
- ⊗ QUICK COUPLER

NOTES:

1. PLACE ALL QUICK COUPLERS AT PERIMETER OF FIELD IMMEDIATELY ADJACENT TO FIELD CURB, AND SPACED AS SHOWN.
2. DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, ETC. IS TO SHOW INTENT AND DESIGN CLARIFICATION. CONTRACTOR TO INSTALL IN A MANNER CONFORMING TO DETAILS AND CONSIDERATION OF OTHER COMPONENTS OF THE PLAYING FIELD SYSTEM.
3. IRRIGATION MAINLINE WILL BE LOCATED IN TRENCH WITH COLLECTOR PIPE, RE: 1/C-601.
4. SEE SITE DETAIL SHEETS FOR SYSTEM DETAILS, OR AS NOTED, RE: C-602
5. EXERCISE EXTREME CARE IN EXCAVATION & WORKING AROUND EXISTING UTILITIES. VERIFY LOCATION & CONDITIONS OF ALL UTILITIES AND BE RESPONSIBLE FOR DAMAGE TO UTILITIES. FIELD ADJUST QUICK COUPLER LOCATIONS SO AS TO AVOID CONFLICTS WITH UTILITIES.



File: \\CHA-LFP-COM\PROJ\PROJECTS\ANY\080051\080051\DESIGN\DRAWINGS\01_SHEETS\TRACK PLANS\C-401-080051.DWG
 Saved: 4/19/2024 11:55:26 AM Plotted: 4/22/2024 8:36:57 AM Current User: Kinney, James LastSavedBy: 6052

ITB #6763 INDIAN TRAIL MIDDLE SCHOOL TRACK RENOVATIONS PHASE 2

LIST OF PLANHOLDERS

Gayla Lemons
GaylaL@baselinellc.com
Project Coordinator
865-603-4074
www.baselinellc.com

Danny Williamson
Track Sales & Development
GEO SURFACES
(828) 399-1519
d.williamson@geosurfaces.com

Heather Lowery
Builders Exchange of Tennessee
300 Clark Street
Knoxville, TN 37921
865-525-0443
heather@bxtn.org

Alexa Kucker
Sales Coordinator
Goat Turf
Office 615-906-6932
akucker@goatturf.com

Jamie Copling
Regional Sales Director
Phone: 615-587-7765
jamie.copling@polysportusa.com

Catie Macuna
Sr. Content Specialist
ConstrucConnect
P: 513-458-8576
Catie.Macuna@ConstructConnect.com

Drew Shoaf
Mid-Atlantic Sales Manager
(336)596-3233 | rekortan.com
drew.shoaf@rekortan.com

Jamie Egli
Guardian Construction
1060 Elizabeth St., Suite 8
Nicholasville, KY 40356
c: 502.542.0820
e: jamie.egli@guardian-co.com

John Huff
(865) 256-5408
Tim's Fencing
johnhuff@timsfencing.com

Tyonia Martinez
Mid-America Sports Construction
Mid-America Golf & Landscape
Direct: 816-455-9067
tmartinez@mid-america-golf.com

Ryan Bowie
Sales
GeoSurfaces
Office: 877.663.5968
r.bowie@geosurfaces.com

Kyle Cross
BEYNON SPORTS
Sales Support Specialist
kcross@beynon-sports.com

Caleb Marlar
Hellas
12000 West Parmer Lane
Austin, TX 78613
P: (512) 250-2910
cmarlar@hellasconstruction.com

ICP GROUP
Paulette Hogan
Lead Generation Administrator
Marketing
781-252-0290
phogan@icpgroup.com

Jeff Trexler
Regional Sales - Southeast
cell: 828.964.7899
GeoSurfaces Southeast
150 River Park Road. Mooresville, NC 28117
j.trexler@geosurfaces.com

Construct Connect
Catie Macuna
Sr. Content Specialist
513-458-8576
Catie.Macuna@ConstructConnect.com

Marc Carruthers
NEW ERA SURFACING
(419)706-8376
marc@newerasurfacing.com

SIGN IN SHEET – INDIAN TRAIL MS – TRACK RECONSTRUCTION – PRE-BID MEETING – 11:00AM – 4/16/24

Daniel Deats	CHA	518-894-0542	ddeats@chacompanies.com
Jamie Copling	Polysport	615-587-7765	jamie.copling@polysportusa.com
Danny Williamson	GEO Surfaces	828-399-1519	d.williamson@geosurfaces.com
John Kees	Summers-Taylor inc.	423-741-8505	johnk@summerstaylor.com
Ron Hatcher	Baseline Sports Const	865-389-1492	ronh@baselinellc.com
James Jacobs	Indian Trail Principal	423-610-6000	jacobsj@jcschools.org
Will Ferguson	Baseline Sports Const	865-599-0142	will@baselinellc.com
Brian Ross	Johnson City	423-434-5718	bross@johnsoncitytn.org

