



## Business

## Department

School Administration Building  
304 New York Ave  
Oak Ridge, Tennessee 37830  
Phone (865) 425-9005  
Fax (865) 425-9060

# Request for Bid

### ***Description of items/services requested:***

The Oak Ridge Schools Board of Education is soliciting proposals for Oak Ridge High School track repair/replacement project (**RFP 22-005**) **Ben Martin Track repair/replacement project.**

### ***General Requirements:***

All interested vendors are encouraged to attend a Pre-Bid walk through that will take place on September 22, 2021 at 11:00am EDT at the Oak Ridge High School track entrance. If a Vendor is unable to attend the pre-bid meeting or needs to see the site again after the meeting, please contact the Maintenance and Operations office at (865) 425-3171 to schedule an appointment.

**All personnel provided as a result of this contract award must be direct employees of the awarded contractor. The Oak Ridge Schools Board of Education will not allow for utilization of temporary personnel or day laborers to service this contract.**

Proposals, bids, or responses will be accepted by the Oak Ridge Schools Business Department no later than **12:00 PM EDT, October 6, 2021**. Every document must be enclosed in an envelope clearly marked as a bid document. **Two full copies** of the proposal must be submitted each with original signatures on both Bid Forms (included in this packet). Any response, bid, or proposal received after the above deadline shall be considered late, and will not be opened or considered. Bid prices must be valid for no less than sixty (60) days from the date of the bid.

All documents shall be submitted to the following address:

Mary Ann Riley, Purchasing Specialist  
Re: Ben Martin Track repair/replacement project  
(RFP 22-005)  
Oak Ridge Schools  
304 New York Ave  
Oak Ridge, TN 37830

***Scope of Work/General Specifications:***

**Proposal Preparation and Submission Requirements**

To enable the Oak Ridge Schools Board of Education to conduct a uniform review of all proposals submitted in response to this solicitation, components of the proposal shall be submitted as set forth below. The Oak Ridge Schools Board of Education reserves the right to reject submittals that do not follow the requested format listed below.

**Vendor Profile:** Provide a vendor profile to include:

- An overview of the company
- The length of time the Vendor has been in business
- An outline of the Vendor's background and overall qualifications
- Provide a minimum of three client references, including complete addresses and telephone numbers and contact person

Provide a total cost for the entire project. Successful vendor will furnish a cost breakdown for accounting purposes.

**Award Process:** Upon award, the resulting contract:

Will be approved by the Oak Ridge Schools Purchasing Department.

Will be reviewed and approved by the Oak Ridge Schools' attorney.

Will be sent to the Oak Ridge Schools Board of Education for approval.

Will be sent to the Oak Ridge Schools Superintendent for signature.

Will be forwarded to the Oak Ridge Schools Purchasing Department, for obtaining the signature of the bidder(s).

Be fully executed.

**Compliance with Instructions from Site-Based Administrators:** Should a site-based administrator (typically a principal or assistant principal but also a maintenance supervisor or other designated persons) request a cessation of work, work shall immediately stop. Vendor is to immediately call the Oak Ridge Schools Maintenance and Operations Department administrator in charge of the project for further instruction. Should a site-based administrator request a change of scope, function, design, et cetera of the project, such request is to be reported to the Oak Ridge Schools Maintenance and Operations Supervisor prior to any changes being affected.

**Entrance to Oak Ridge School Sites:** Only authorized employees of the successful Vendor are allowed on the premises of Oak Ridge School buildings. Vendor employees are NOT to be accompanied in their work area by acquaintances, family members, assistants or any person unless said person is an authorized employee of the Vendor. All employees must wear a company uniform, have picture identification badges, or other Company Identification at all times.

**Evaluation Review:** Oak Ridge Schools reserves the right to use all pertinent information (also learned from sources other than disclosed in the bid process) that might affect the District's judgment as to the appropriateness of an award to the best evaluated bidder. This information may be appended to the bid evaluation process results. Information on a service provider from reliable sources, and not within the service provider's bid, may also be noted and made part of the evaluation file. ORS shall have sole responsibility for determining a reliable source. ORS reserves the right to conduct written and/or oral discussion/interviews after the bid opening. The purpose of such discussions/interviews is to provide clarification and/or additional information to make an award which is in the best interest of ORS.

**Identification:** Employees of the Vendor shall have proper identification displayed AT ALL TIMES while on school property.

**Last day for questions:** All questions regarding this bid must be submitted in writing to Mary Ann Riley, no later than September 29, 2021. You may submit questions by email to [mriley@ortn.edu](mailto:mriley@ortn.edu).

**Licensing:** Throughout the term of this contract, the Vendor shall maintain a current license issued by the State of Tennessee.

**Open Bid Intended:** It is the intent and purpose of Oak Ridge Schools that this Invitation to Bid promote competitive pricing. It shall be the BIDDERS responsibility to advise Purchasing Department, if any language, requirements, et cetera or any combination thereof, inadvertently restricts or limits this Invitation for Bid. Such notification must be submitted in writing and must be received by the Purchasing Department not less than ten (10) days prior to the bid closing date.

**Price Reductions:** By submitting a bid in response to this solicitation, Contractors agree to guarantee that the ORS is receiving the lowest price offered by your company to other customers for similar services at comparable volumes in a similar geographic area. If at any time during the contract period your company offers a lower price to another customer, notification not made of price reductions, upon discovery ORS shall reserve the right to take any or all of the following actions:

- Cancel the Contract

- Determine the amount which ORS was overcharged and submit a request for payment from the Contractor for that amount.
- Take the necessary steps to collect any performance surety provided on the applicable contract.
- ORS will be responsible for the monitoring and collection of any forfeitures resulting in violations of price reductions.

**Removal of Vendor's Employees:** The successful Vendor agrees to utilize only experienced responsible and capable people in the performance of the work. The ORS may require that the successful Vendor remove from the job covered by this contract, employees who endanger person or property or whose continued employment under this contract is inconsistent with the interest of ORS.

**Scheduling of Work:** Vendor shall cooperate with School officials in performing work so that interference with the normal program will be held to a minimum.

**Subcontracting:** Any subcontracting must be approved, in advance, by Oak Ridge Schools. ORS may terminate the contract if subcontracting is done without approval.

**Use of Trash Containers:** Vendors are advised that Oak Ridge School policy does not allow vendors to utilize on-site trash bins paid for by the Oak Ridge Schools. Vendors are responsible for removing and disposing of all debris associated with the work to be performed under this contract.

**Value Added Relationship:** Oak Ridge Schools intend for this bid to result in a relationship with a Vendor. Oak Ridge Schools desire a long-term relationship with a vendor in which common goals are shared. Among those goals are:

- Fair and equitable treatment of vendor and owner.
- Vendor expertise in methods of cost reduction. Vendors are encouraged to suggest ways in which costs can be reduced by substitutions or process modification.

**Compliance with all Applicable Regulations:** Vendor agrees and covenants that the company, its agents, and employees will comply with all County, State, and Federal laws, rules and regulations applicable to the business to be conducted under this contract. Vendor shall secure all necessary permits for the proper execution and completion of work. The Vendor shall give all notices in compliance with all the laws, ordinances, rules and regulations bearing on the conduct of work. All work shall conform to all applicable federal, state, and local regulations governing the same. Nothing in these plans and specifications is to be construed not to conform to codes and regulations. If the Vendor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, the Vendor shall bear all costs arising from them.

**Safety and Protection:** The contractor shall be solely and completely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. The contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent injury to, all employees on the work site and other persons including but not limited to, the general public who may be affected thereby. The contractor shall be responsible for providing and for the placement of barricades, tarps, plastic flag tape, and other safety/traffic control equipment required to protect the public, surrounding areas, equipment and vehicles.

The flow of vehicular traffic shall not be impeded at any time during the project. The safety of the public is of prime concern to Oak Ridge Schools and all costs associated are the responsibility of the contractor. Oak Ridge Schools does not assume any responsibility, at any time, for the protection of or for loss of materials, acceptance of the work by the project manager.

**Vendor Responsibilities:** At their own expense, the Vendor shall:

- Provide competent supervision.
- Provide competent workers.
- Take precautions necessary to protect persons or property against injury or damage and be responsible for any such damage, or injury that occurs because of their faulty or negligence.
- Perform work without unnecessarily interfering with school activities or other vendor(s).
- The Vendor shall be responsible (daily) to maintain a clean work site, to remove debris, and to dispose of it properly at the Vendor's expense.
- The Vendor shall be responsible for maintaining the work area in such a manner that the public and Oak Ridge Schools Maintenance staff may continue to work in the facility.

**Warranty and Guarantee:**

1. A written warranty and guarantee is required from the contractor which shall be submitted with the final billing. A detailed statement should include the period of time involved as well as the specific details of the warranty.
2. The submitted warranty will include a detailed roster of maintenance and care instructions. The owner shall follow these instructions for the warranty to remain in force.
3. Contractor shall obtain and pay for all permits, licenses, etc., as required by the city and county where the work is to be performed and by the state of Tennessee and shall give all legal notices and pay all fees required for the work.
4. The successful bidder shall not assign this contract or any part thereof, or any money due or to become due hereunder, without the written approval of Oak Ridge Schools.
5. Oak Ridge Schools may require of the successful bidder sufficient information to establish financial responsibility; that he has adequate facilities and personnel; plus any other information which may be requested by Oak Ridge Schools which it deems necessary to establish the successful bidder's ability to perform this work.
6. Should any defective work be discovered, which, in the opinion of Oak Ridge Schools cannot be accepted, the same shall at once be removed and replaced at the Contractor's expense.

**Site Clean-Up and Restoration:**

1. The contractor will properly protect all school district property, structures, and equipment throughout the performance of the work.
2. The contractor will conduct daily clean-up of material and equipment, ensuring the work site is kept clean and safe at all times. Proper warning signs and barricades will be used to warn the public to remain clear of operations.
3. The contractor will restore all asphalt, grass, structures, and equipment to its pre-construction condition if damaged during construction operations.

***Purchasing Terms:***

Oak Ridge Schools will order on the following schedule: Board of Education approval and availability of funds.

***Submission Requirements:***

1. A detailed bid form, which includes quantity and unit cost must be included in the bid package.
2. Two full copies of the proposal must be submitted, with original Bid Forms included with each copy.
3. The amount listed on the Bid Form should reflect the total implementation costs of this service as submitted.

***Contracted Service Insurance:***

1. The successful bidder shall file with the Purchasing Department of Oak Ridge Schools, prior to commencing work, an appropriate certificate of insurance, in duplicate, evidencing compliance with the insurance requirements contained in the bid specifications.
2. Additional Insured – the certificate of insurance shall name Oak Ridge Schools as an additional insured under the required policies of liability insurance set forth in the insurance requirements of these specifications.
3. The insurance required hereunder naming Oak Ridge Schools as an additional insured shall be primary insurance to any and all insurance that might be in force for the benefit of Oak Ridge Schools
4. Insurance Requirements – The successful bidder who provides products and service to Oak Ridge Schools will provide the District with satisfactory evidence of the following insurance coverage:
  - a. Workers compensation and industrial diseases insurance in the statutory amounts, and employer’s liability in the amount of \$500,000.
  - b. General liability insurance or comprehensive general liability insurance, including contractual liability, product/completed operation, and Contractors broad form liability in an amount equal to \$1,000,000 combined single limits of liability.
  - c. Automobile liability insurance, including non-owned and hired automobiles, in an amount equal to \$1,000,000 combined single limits of liability.

Such insurance shall be written by insurers acceptable to Oak Ridge Schools. The certificate of insurance shall indicate whether the policy or policies of insurance are written on an claims-made or occurrence basis.

**All work shall be as bid documents prepared by:**

Cope Associates, Inc.  
Tyson Place, Suite 5  
2607 Kingston Pike  
Knoxville, TN 37919  
(865) 694-9000

Project No. 21034

Attachments:

Project Manual Ben Martin Track Replacement for Oak Ridge High School  
ORHS Ben Martin Track Project Drawings

Schedule:

1. A pre-bid walkthrough is scheduled for **September 22, 2021 at 11:00am EST** at the entrance of the Oak Ridge High School track (1450 Oak Ridge Turnpike, Oak Ridge, TN 37830). Please follow Covid-19 protocol and do not attend if ill.
2. Sealed bids will be opened on **October 6, 2021 at 12:00pm EST** at the School Administration Building, Business Office Conference Room, 304 New York Ave., Oak Ridge, TN 37830.

## Bidding Procedures

**Location:** All bids must be submitted to the Oak Ridge Schools Business Department at or before the announced deadline.

Mary Ann Riley,  
Purchasing Specialist  
ORHS Track  
Repair/Replacement  
Project  
RFP 22-005  
304 New York Ave.  
Oak Ridge, TN 37830

**Award of Contract:** The owner (Oak Ridge Schools) further reserves the right to reject any and all bids, to waive any and all informalities and to negotiate contract terms with the successful bidder, and the right to disregard all non-conforming, non-responsive, or conditional bids. Oak Ridge Schools may conduct such investigations, as it deems necessary, to assist in the evaluation of any bid to establish the responsibility, qualifications, and financial ability of the bidder, proposed sub-contractors and other persons and organizations to perform the work in accordance with the contract documents to the bidder who does not pass any such evaluation to the owner's satisfaction. The contract shall be awarded to the bidder, whose evaluation by the owner indicates to the owner that the award will be in the best interest of Oak Ridge Schools. It is also understood that the "apparent low bidder" will be announced at the bid opening; however the "successful bidder," who may or may not be the lowest bidder, will not be announced until all issues, which include, but are not limited to quality, service, conformity to specifications, etc. have been resolved and until a period of review has been completed by the owner. Price will be the primary factor when determining the successful bidder assuming all bid specifications are met. Oak Ridge Schools does not enter into contracts that provide for mediation or arbitration. The owner (Oak Ridge Schools) further reserves the right to reject any and all bids, to waive any and all informalities, and to negotiate contract terms with the successful bidder (e.g., product line-item deletions or adjustments), and the right to disregard all non-conforming, non-responsive, or conditional bids.

**Bid Document:** For certain projects the Owner will supply a bid form to be completed by the bidder. When such forms are issued, only bids returned with the proper forms will be accepted. Envelopes must be sealed and marked as a bid document. Any bid may be withdrawn prior to the date and time as set forth in the "bid invitation."

**EDGAR Certification:** The EDGAR certifications and provisions are required and applied when Oak Ridge Schools expends federal funds for any contract resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, including small purchases, awarded by the District and the District's subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

**Errors in Bids:** When an error is made in extending total prices, the unit bid price will govern. Carelessness in quoting prices or in preparation of bid otherwise, will not relieve the bidder. Erasures or changes to bids must be initialed. Any alteration, erasure, addition to or omission of required information, change of the specifications, or bidding schedule, is made at the risk of the bidder.

**Facsimile transmissions:** Electronic transmissions will not be accepted, except when in the course of the bidding process addendums or other notifications of errors on behalf of the owner places an undue hardship upon prospective bidders. Written notification by the owner must precede the acceptance of Facsimile transmissions.

**Hold Harmless Agreement:** Bidders shall be required to complete the attached Hold Harmless Agreement.

**Laws and Regulations:** The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.



**Legal Issues:** Contracts with Oak Ridge Schools will be subject to the laws of Tennessee. Disputes will be tried in the State of Tennessee and in the Court of Anderson County. Bids will be denied if these provisions are not included in the contract.

**Non-Collusion Affidavit:** Bidder shall be required to complete the attached Non-Collusion Affidavit.

**Payments:** Invoices that are submitted by the awarded bidder are required to provide accurate and current addresses.

Payment terms shall be specified in the bid response, including any discounts for early payment. The Oak Ridge Schools Business Department discourages the practice of picking up checks in person, unless there is an emergency situation.

**Purchase:** No purchase or contract is authorized or valid until the issuance of a Purchase Order from Oak Ridge Schools and the Board of Education approval of project in accordance with Oak Ridge Schools Policy. No employee is authorized to purchase equipment, supplies or services prior to the issuance of such Purchase Order and Board of Education approval.

**Sub-contracts:** The Bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a sub-contract under this contract must be acceptable to the Owner.

**Subcontractors and employees:** If work is to be performed during regular school hours when children are present, the BOE requires background checks, dress codes, and certain ethical standards of all employees on school property.

**Taxes:** Oak Ridge Schools is tax exempt.

**Tie Bids:** If two or more bidders submit identical bids and is equally qualified; selection shall be made at the discretion of the owner.

**Title VI of the Civil Rights Act of 1964:** All interested parties, without regard of race, color, or national origin, shall be afforded the opportunity to bid and shall receive equal consideration. Title VI states "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program activity receiving Federal financial assistance." Oak Ridge Schools strives to protect individuals' civil rights through active compliance with the requirements of Title VI.

**Vendor Indemnify:** Oak Ridge Schools will indemnify vendor to the extent Tennessee law allows.

**Warranty:** The vendor shall provide warranty information on the equipment, components and items bid with the bid submittal.

## Bid Form

Owner: Oak Ridge Schools Board of Education  
Mary Ann Riley, Purchasing Specialist  
School Administration Building  
304 New York Ave  
Oak Ridge, TN 37830

Project: ORHS Track Repair/Replacement  
  
(RFP 22-005)

Bid Opening: **12:00 PM EDT, Oct. 6, 2021**

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

**Main Bid:** *This Price is to be for the complete package, materials, licenses, and labor to complete this project. Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Cope Associates, Inc. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the sum of:*

Bid Amount: \_\_\_\_\_ US dollars.

Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**VENDOR INFORMATION AND PRICING FOR ORHS TRACK REPAIR/REPLACEMENT  
RFP 22-005**

Vendor Name:	
Vendor Address:	
City:	
State:	
Telephone:	
Fax:	
Contact Person:	
Contact Person's email:	
Authorizing Signature:	
(Sign in blue ink.)	
Do you accept the Terms and Conditions of the bid?	
Yes <input type="checkbox"/>	
No <input type="checkbox"/>	
With Exceptions:	
Did you include Criminal History Records Check?	
Yes <input type="checkbox"/>	
No <input type="checkbox"/>	
Have you included copies of Licenses?	
Yes <input type="checkbox"/>	
No <input type="checkbox"/>	
Total Local Staff Size:	Technicians:
Helpers:	
Number of Years in Business:	
Locally:	

**HOLD HARMLESS AGREEMENT**

This Hold Harmless Agreement is between \_\_\_\_\_

Name of Contractor

(Hereinafter Contractor), and Oak Ridge Schools named in this bid.

Contractor agrees that as a condition precedent to "Contractor" being awarded a contract from Oak Ridge Schools, "Contractor" agrees to indemnify, protect, defend, and hold harmless Oak Ridge Schools, its Board Members, agents, and employees from all judgments, claims, demands for payment, suits or actions of every nature and description brought against Oak Ridge Schools, its Board Members, agents, and employees alleging injuries or damages sustained by any person arising out of or in the course of "Contractor's" providing goods or services to Oak Ridge Schools.

Name of Contractor: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

**STATE OF** \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_ personally appeared before me, the undersigned, with whom I am personally acquainted and who, upon oath, acknowledged that he/she/it executed the within instrument for the purposes therein contained, and who further acknowledge that he/she/it is authorized to execute this interment on behalf of

\_\_\_\_\_.

\_\_\_\_\_  
Signature

Witness by hand and Notaries seal at office this \_\_\_\_\_ day of \_\_\_\_\_,  
year of \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

**CRIMINAL BACKGROUND COMPLIANCE AFFIDAVIT**

**STATE OF** \_\_\_\_\_

**COUNTY OF** \_\_\_\_\_

The undersigned, principal officer of \_\_\_\_\_, an Employer contracting with the Oak Ridge School Board of Education to provide services having direct contact with children or access to grounds of an Oak Ridge public school while students are on grounds, hereby states under oath as follows:

1. The undersigned is a principal officer of \_\_\_\_\_ (hereafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.
  
2. The Company submits this Affidavit pursuant to T.C.A. § 49-5-413 as amended effective September 1, 2007, for entities entering into contracts with a local board of education where the Company's employees will have direct contact with school children or access to the grounds of a school when children are present. It is the duty of the Company to require applicants supply a fingerprint sample and submit to a criminal history records check to be conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation prior to permitting the person to have contact with such children or enter school grounds and to take certain other actions based upon the results of the records check.
  
3. The Company is in compliance with the terms of T.C.A. § 49-5-413.

Further affiant saith naught.  
Principal Officer

**STATE OF** \_\_\_\_\_

**COUNTY OF** \_\_\_\_\_

Before me personally appeared \_\_\_\_\_ with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that he/she is the \_\_\_\_\_ of \_\_\_\_\_ and is authorized to execute this instrument on behalf of the principal for the purposes therein contained.

Witness my hand and seal at office this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Notary Public

**My commission expires:** \_\_\_\_\_

**DRUG-FREE WORKPLACE AFFIDAVIT**

**STATE OF** \_\_\_\_\_

**COUNTY OF** \_\_\_\_\_

The undersigned, principal officer of \_\_\_\_\_, an employer of five (5) or more employees contracting with Oak Ridge School District to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of \_\_\_\_\_ (hereafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.
  
2. The Company submits this Affidavit pursuant to T.C.A. § 50-9-113 which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the Tennessee Code Annotated.
  
3. The Company is in compliance with the terms of T.C.A. § 50-9-113.

Further affiant saith naught.

Principal Officer

**STATE OF** \_\_\_\_\_

**COUNTY OF** \_\_\_\_\_

Before me personally appeared \_\_\_\_\_ with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that he/she is the \_\_\_\_\_ of \_\_\_\_\_ and is authorized to execute this instrument on behalf of the principal for the purposes therein contained.

Witness my hand and seal at office this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Notary Public

**My commission expires:** \_\_\_\_\_

**NON-COLLUSION AFFIDAVIT**

NON-COLLUSION AFFIDAVIT TO BE EXECUTED  
BY DESIGN-BUILDER

State of \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_, being first duly sworn, deposes and says that he or she is of the party making the foregoing bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder neither possesses a business relationship with any employee of the District which may be involved in the award or administration of the project nor has received or solicited either directly or indirectly any inside information from an employee of the District which would give the bidder an advantage over any other bidder; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or any interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price of any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Subscribed and sworn to (or affirmed) before me this \_\_\_\_\_ day

of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Signature of Officer

\_\_\_\_\_  
Notary Signature

\_\_\_\_\_  
Typed Name of Officer

\_\_\_\_\_  
Office

\_\_\_\_\_  
Notary Seal

WARNING! PROPOSALS WILL NOT BE CONSIDERED UNLESS THIS AFFIDAVIT IS COMPLETED AND EXECUTED, INCLUDING THE AFFIDAVIT OF THE NOTARY AND THE NOTORIAL SEAL.

**IRAN DIVESTMENT ACT REQUIREMENTS**

Pursuant to Tennessee Code Annotated § 12-12-106 (as enacted by Chapter 817 of the Public Acts of 2016) the chief procurement officer for the State of Tennessee shall publish a list of persons determined to be engaging in investment activities in Iran. The list is posted on the website of the Tennessee General Services Department’s Central Procurement Office\*. When competitive bidding is required, Tennessee Code Annotated § 12-12-111 requires every bid or proposal submitted to a local government for goods or services to include the following statement, subscribed or affirmed by the bidder as true under the penalty of perjury:

**CERTIFICATION**

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 is not on the list created pursuant to *T.C.A. § 12-12-106*.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name of Firm/Company

\*[https://tn.gov/assets/entities/generalservices/cpo/attachments/List\\_of\\_persons\\_pursuant\\_to\\_Tenn.\\_Code\\_An\\_n.\\_12-12-106.\\_Iran\\_Divestment\\_Act-July.pdf](https://tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to_Tenn._Code_An_n._12-12-106._Iran_Divestment_Act-July.pdf)



# PROJECT MANUAL

## **BEN MARTIN TRACK REPLACEMENT**

FOR

OAK RIDGE HIGH SCHOOL

Project No. 21034

for

**Oak Ridge Schools**

304 New York Ave  
Oak Ridge, TN 37830

August 27, 2021



**Cope Associates, Inc.**

Tyson Place, Suite 5  
2607 Kingston Pike  
Knoxville, TN 37919  
Phone: (865) 694-9000  
Fax: (865) 584-1860

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NOT APPLICABLE

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NOT APPLICABLE

**DIVISION 11 EQUIPMENT**

NOT APPLICABLE

**DIVISION 12 FURNISHINGS**

NOT APPLICABLE

**DIVISION 13 SPECIAL CONSTRUCTION**

NOT APPLICABLE

**DIVISION 14 CONVEYING EQUIPMENT**

NOT APPLICABLE

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NOT APPLICABLE

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NOT APPLICABLE

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NOT APPLICABLE

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NOT APPLICABLE

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NOT APPLICABLE

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REFER TO CIVIL DRAWINGS

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REFER TO CIVIL DRAWINGS

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REFER TO CIVIL DRAWINGS

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**SECTION 01 03 70 -WEATHER DELAYS**

**PART 1 - GENERAL**

**1.1 EXTENSIONS OF CONTRACT TIME**

- A. An extension of time on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed as the Standard Baseline for that month and that impact the Network Analysis System Critical Path.

**1.2 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE**

- A. The Government has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of Tennessee.
- B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.
- C. Standard Baseline is as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	11	8	7	7	6	7	5	4	5	6	11

**1.3 ADVERSE WEATHER AND WEATHER DELAY DAYS**

- A. Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:
  - (1) Precipitation (rain, snow or ice) in excess of one-tenth inch (0.10") liquid measure.
  - (2) Temperatures which do not rise above 32 degrees F by 10:00 a.m.
  - (3) Temperatures which do not rise above that specified for the day's construction activity by 10:00 a.m., if any is specified.
  - (4) Sustained wind in excess of twenty-five (25) m.p.h.
  - (5) Standing snow in excess of one inch (1.00").
- B. Adverse Weather may include, if appropriate, "dry-out" or "mud" days when all the following conditions are met:
  - (1) For rain days above the standard baseline.
  - (2) Only if there is a hindrance to site access or sitework, such as excavation, backfill and footings.
  - (3) At a rate no greater than 1 make-up day for each day or consecutive days of rain beyond the standard baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Contracting Officer.
  - (4) A Weather Delay Day may be counted if adverse weather prevents work on the

project for fifty percent (50%) or more of the Contractor's scheduled work day, including a weekend day or holiday if Contractor has scheduled construction activity that day.

1.4 DOCUMENTATION AND SUBMITTALS

- A. Submit daily jobsite work logs showing which and to what extent construction activities have been affected by weather on a monthly basis.
- B. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Contracting Officer at beginning of project.
- C. Submit an updated Network Analysis System projecting the adverse weather days and its effect on project completion.
- D. Use Standard Baseline data provided in this section when documenting actual delays due to weather in excess of the average climatic range.
- E. Organize claim and documentation to facilitate evaluation of a basis of calendar months periods, and submit in accordance with the procedures for claims established in Bidding and Contract Documents Section.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

**SECTION 01 10 00 - SUMMARY**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Work phases.
  - 3. Work under other contracts.
  - 4. Use of premises.
  - 5. Owner's occupancy requirements.
  - 6. Specification formats and conventions.

**1.2 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification: Replacement of Ben Martin Track at Oak Ridge High School
  - 1. Project Location: 1450 Oak Ridge Turnpike, Oak Ridge, TN 37830
- B. Owner: Oak Ridge Schools District
- C. Architect: Cope Associates, Inc.
- D. The Work consists of the following:
  - 1. Furnish all labor, materials and equipment, and perform all work required to replace the track and associated components per the Contract Documents. The work shall be constructed complete and ready for occupancy, except for the items specifically excluded in "Work of Other Contracts".
- E. Project will be constructed under a single prime contract.

**1.3 WORK NOT INCLUDED**

- A. The following items of work will be provided by the owner or by others under separate contracts:
  - 1. Any other items listed as "N.I.C." or Not in Contract.
- B. The following work in connection with the items listed in paragraph 1.3.A preceding shall be part of the Contract Work:
  - 1. Verification of correct location of electrical receptacles, telephone outlets and similar outlets to suit furniture arrangement.
  - 2. Installation of conduit, outlet boxes with finished covers and terminal cabinets for telephone and data communications systems.

**1.4 WORK UNDER OTHER CONTRACTS**

- A. The following items of work will be performed under a separate contract and will require coordination with the Owner and the Owner's Contractor"



## **1.5 ACCESS TO SITE**

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. The Owner has specific requirements as it relates to construction schedules. Contractor is responsible for coordinating these times with Owner.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

## **1.6 COORDINATION WITH OCCUPANTS**

- A. Full Owner Occupancy: Owner will occupy the premises during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
  - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

## **1.7 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

**BEN MARTIN TRACK REPLACEMENT  
OAK RIDGE HIGH SCHOOL**

SUMMARY

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01 25 00 - CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for procedural requirements for handling and processing allowances.
  - 2. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

#### **1.3 MINOR CHANGES IN THE WORK**

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

#### **1.4 PROPOSAL REQUESTS**

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 20 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include costs of labor and supervision directly attributable to the change.
  - 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - 6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.
- D. Any additional cost resulting from the use of an incomplete Set of Construction Documents is the responsibility of the Contractor.

## **1.5 ALLOWANCES**

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
  - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
  - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

**1.6 CHANGE ORDER PROCEDURES**

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

**1.7 CONSTRUCTION CHANGE DIRECTIVE**

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

**SECTION 01 29 00 - PAYMENT PROCEDURES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

**1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

**1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
    - c. Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.

- b. Name of Architect.
  - c. Architect's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Submit draft of AIA Document G703 Continuation Sheets.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Change Orders (numbers) that affect value.
  - d. Dollar value.
    - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

## **1.5 APPLICATIONS FOR PAYMENT**

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

- C. Payment Application Times: Progress payments shall be submitted to Architect as mutually agreed upon at project inception. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit final or full waivers.
  - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Updated Construction Schedule: With each Application for Payment, submit one (1) copy of Updated Construction Schedule.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of subcontractors.
  - 2. Schedule of Values.
  - 3. Contractor's Construction Schedule (preliminary if not final).
  - 4. Products list.
  - 5. Schedule of unit prices.
  - 6. Submittals Schedule (preliminary if not final).
  - 7. List of Contractor's staff assignments.
  - 8. List of Contractor's principal consultants.
  - 9. Copies of building permits.
  - 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  - 11. Initial progress report.
  - 12. Report of preconstruction conference.



13. Certificates of insurance and insurance policies.
  14. Performance and payment bonds.
  15. Data needed to acquire Owner's insurance.
  16. Initial settlement survey and damage report if required.
- J. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final, liquidated damages settlement statement.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

**SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Project meetings.
  - 3. Requests for Interpretation (RFIs).
- B. Correspondence and Electronic Communications.
  - 1. For ease and speed of communications, both Architect and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay request and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.
  - 2. Minimum requirements for electronic exchange of information should include a PC workstation, Internet connection, color capable printer, and scanner. The software should include programs compatible with MS Office and Adobe Acrobat.
  - 3. The preferred method for Contractor's submission of reports, RFI's, meeting minutes, photos, and other data is by E-mail with file attachment(s).
- C. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 1 Section "Closeout Procedures" for coordinating closeout of the Contract.

**1.3 DEFINITIONS**

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

## **1.4 COORDINATION**

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
  4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
  2. Preparation of the Schedule of Values.
  3. Installation and removal of temporary facilities and controls.
  4. Delivery and processing of submittals.
  5. Progress meetings.
  6. Preinstallation conferences.
  7. Project closeout activities.
  8. Startup and adjustment of systems.
  9. Project closeout activities.

## **1.5 SUBMITTALS**

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum

clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
3. Number of Copies: Submit two opaque copies of each submittal. Architect will return one copy.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

## **1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL**

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

## **1.7 PROJECT MEETINGS**

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Phasing.
  - c. Critical work sequencing and long-lead items.
  - d. Designation of key personnel and their duties.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for RFIs.
  - g. Procedures for testing and inspecting.
  - h. Procedures for processing Applications for Payment.
  - i. Distribution of the Contract Documents.
  - j. Submittal procedures.
  - k. Preparation of Record Documents.
  - l. Use of the premises.
  - m. Work restrictions.

- n. Owner's occupancy requirements.
  - o. Responsibility for temporary facilities and controls.
  - p. Construction waste management and recycling.
  - q. Parking availability.
  - r. Office, work, and storage areas.
  - s. Equipment deliveries and priorities.
  - t. First aid.
  - u. Security.
  - v. Progress cleaning.
  - w. Working hours.
3. Minutes: Record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
  - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. The Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility problems.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's written recommendations.
    - n. Warranty requirements.
    - o. Compatibility of materials.
    - p. Acceptability of substrates.
    - q. Temporary facilities and controls.
    - r. Space and access limitations.
    - s. Regulations of authorities having jurisdiction.
    - t. Testing and inspecting requirements.
    - u. Installation procedures.
    - v. Coordination with other work.
    - w. Required performance results.
    - x. Protection of adjacent work.
    - y. Protection of construction and personnel.
  - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.
      - 13) Status of correction of deficient items.
      - 14) Field observations.
      - 15) RFIs.
      - 16) Status of proposal requests.
      - 17) Pending changes.
      - 18) Status of Change Orders.
      - 19) Pending claims and disputes.
      - 20) Documentation of information for payment requests.
  3. Minutes: Record the meeting minutes.
  4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

## **1.8 REQUESTS FOR INFORMATION (RFIs)**

- A. Procedure: After carefully reviewing the Contract Documents as required by Article 3.2.1 of the General Conditions of the Contract, Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to verbally request interpretation at Project meeting, or if the issue needing interpretation cannot be adequately addressed verbally, prepare and submit an RFI in the form specified.
  1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Prepare written RFIs when clarifications of the documents are required. Note that there will be a direct back-charge, consistent with Article 3.2.4 of the General Conditions of the Contract, of five hundred (\$500.00) for any written RFI, which is clearly answerable by referring to the Contract Documents and, in the opinion of the Architect, should have been either answered by the Contractor or should not have been submitted in the first place. This charge will be assessed via an appropriate change order.
  3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
  1. Project name.
  2. Date.
  3. Name of Contractor.
  4. Name of Architect.
  5. RFI number, numbered sequentially.
  6. Specification Section number and title and related paragraphs, as appropriate.
  7. Drawing number and detail references, as appropriate.
  8. Field dimensions and conditions, as appropriate.
  9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  10. Contractor's signature.
  11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. Hard-Copy RFIs: Use form included at end of this Section.
  1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
  1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
  - a. Requests for approval of submittals.
  - b. Requests for approval of substitutions.
  - c. Requests for coordination information already indicated in the Contract Documents.
  - d. Requests for adjustments in the Contract Time or the Contract Sum.
  - e. Requests for interpretation of Architect's actions on submittals.
  - f. Incomplete RFIs or RFIs with numerous errors.
2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
  - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**



**Request for Information**

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To \_\_\_\_\_  
From \_\_\_\_\_  
Date \_\_\_\_\_  
Regarding \_\_\_\_\_

Project **ORHS Ben Martin Track Renovations**  
Project # **21034**  
A/E **Cope Associates, Inc.**  
RFI# \_\_\_\_\_

**This is a Clarification to resolve questions arising during construction. There shall be no change to the contract price or schedule caused by the information contained hereon unless specifically authorized in accordance with the contract change clauses.**

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**Questions for Clarifications re:** Drawings # \_\_\_\_\_ Spec Section # \_\_\_\_\_ Detail # \_\_\_\_\_

Initiated by \_\_\_\_\_

Date \_\_\_\_\_

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**Response**

Attachments  
Response from \_\_\_\_\_

Date \_\_\_\_\_

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**CC:**  Owner       Consultants       File       \_\_\_\_\_

**Reply By** \_\_\_\_\_

**Date** \_\_\_\_\_

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## **SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Field condition reports.
  - 7. Special reports.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Photographs.
  - 5. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

#### **1.3 DEFINITIONS**

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.

- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fagnets: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

#### **1.4 SUBMITTALS**

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. Scheduled date for Architect's final release or approval.
- B. Preliminary Construction Schedule: Submit two opaque copies.
  - 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- C. Daily Construction Reports: Submit one copy at monthly intervals.
- D. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

- E. Special Reports: Submit two copies at time of unusual event.

## **1.5 QUALITY ASSURANCE**

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Verify availability of qualified personnel needed to develop and update schedule.
  - 3. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
  - 4. Review delivery dates for Owner-furnished products.
  - 5. Review schedule for work of Owner's separate contracts.
  - 6. Review time required for review of submittals and resubmittals.
  - 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 8. Review time required for completion and startup procedures.
  - 9. Review and finalize list of construction activities to be included in schedule.
  - 10. Review submittal requirements and procedures.
  - 11. Review procedures for updating schedule.

## **1.6 COORDINATION**

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## **PART 2 - PRODUCTS**

### **2.1 SUBMITTALS SCHEDULE**

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to

maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

- a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

## **2.2 PRELIMINARY CONSTRUCTION SCHEDULE**

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 7 days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

## **2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)**

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## **2.4 REPORTS**

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site.
  4. Equipment at Project site.
  5. Material deliveries.
  6. High and low temperatures and general weather conditions.
  7. Accidents.
  8. Meetings and significant decisions.
  9. Unusual events (refer to special reports).
  10. Stoppages, delays, shortages, and losses.
  11. Meter readings and similar recordings.
  12. Emergency procedures.
  13. Orders and requests of authorities having jurisdiction.
  14. Change Orders received and implemented.

15. Construction Change Directives received and implemented.
  16. Services connected and disconnected.
  17. Equipment or system tests and startups.
  18. Partial Completions and occupancies.
  19. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation on RFI Form. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## **2.5 SPECIAL REPORTS**

- A. General: Submit special reports directly to Owner within two 2 days of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

## **PART 3 - EXECUTION**

### **3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their

assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION**

**SECTION 01 32 30 - PHOTOGRAPHIC DOCUMENTATION**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Periodic construction photographs.
  
- B. Related Sections include the following:
  - 1. Division 1 Section "Submittal Procedures" for submitting photographic documentation.
  - 2. Division 1 Section "Selective Demolition" for photographic documentation before selective demolition operations commence.
  - 3. Division 1 Section "Closeout Procedures" for submitting digital media as Project Record Documents at Project closeout.
  - 4. Division 1 Section "Demonstration and Training" for submitting videos of demonstration of equipment and training of Owner's personnel.

**1.3 SUBMITTALS**

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.
  
- B. Construction Photographs: Submit two prints of each photographic view.
  - 1. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
    - a. Name of Project.
    - b. Name and address of photographer.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Date photograph was taken if not date stamped by camera.
    - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
    - g. Unique sequential identifier.



2. Digital Images: Submit a complete set of digital image electronic files with each submittal of prints on CD-ROM. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, uncropped.

#### **1.4 USAGE RIGHTS**

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

#### **1.5 EXTRA PRINTS**

- A. Extra Prints: If requested by Architect, photographer shall prepare extra prints of photographs. Photographer shall distribute these prints directly to designated parties.

### **PART 2 - PRODUCTS**

#### **2.1 PHOTOGRAPHIC MEDIA**

- A. Digital Images: Provide images in uncompressed JPEG format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION PHOTOGRAPHS**

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
  1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Film Images:
  1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
  2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Architect.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  1. Date and Time: Include date and time in filename for each image.
  2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.

- D. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
  - 1. Flag construction limits before taking construction photographs.
  - 2. Take photographs to show existing conditions adjacent to property before starting the Work.
  - 3. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
  - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
  
- E. Periodic Construction Photographs: Take photographs weekly with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
  
- F. Final Completion Construction Photographs: Take color photographs after date of Substantial Completion for submission as Project Record Documents.

**END OF SECTION**

## **SECTION 01 33 00 - SUBMITTAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 4. Division 1 Section "Photographic Documentation" for submitting construction photographs.
  - 5. Division 1 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 6. Division 1 Section "Closeout Procedures" for submitting warranties.
  - 7. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 8. Division 1 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 9. Division 1 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.
  - 10. Divisions 2 through 16 Sections for specific requirements for submittals in those Sections.

#### **1.3 DEFINITIONS**

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.
- C. E-mail Compatible Submittals: Those that are mutually agreed to by the Contractor and Architect as acceptable and appropriate for "Electronic Communications" as described in Division 1 Section "Construction Management and Coordination".

#### **1.4 SUBMITTAL PROCEDURES**

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  - 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- E. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  - 3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.

- 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
  - i. Number and title of appropriate Specification Section.
  - j. Drawing number and detail references, as appropriate.
  - k. Location(s) where product is to be installed, as appropriate.
  - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
  1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
  2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received without a Transmittal Form and will discard submittals received from sources other than Contractor.
  1. Transmittal Form: Use facsimile of form included at end of Section.
  2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked "Accepted" or "Accepted as Corrected".
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "Accepted" or "Accepted as Corrected" by Architect.

## **PART 2 - PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Shop drawings shall include the following note completed and signed by the Contractor:
  - 1. THE DATA SUBMITTED DOES NOT CONTAIN MATERIAL DEVIATION FROM REQUIREMENTS OF CONTRACT DOCUMENTS EXCEPT AS FOLLOWS:
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Standard product operation and maintenance manuals.
    - j. Compliance with specified referenced standards.
    - k. Testing by recognized testing agency.
    - l. Application of testing agency labels and seals.
    - m. Notation of coordination requirements.
  - 4. Submit Product Data before or concurrent with Samples.
  - 5. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Architect will return two copies. Mark up and retain one returned copy as a Project Record Document.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.

- i. Design calculations.
  - j. Compliance with specified standards.
  - k. Notation of coordination requirements.
  - l. Notation of dimensions established by field measurement.
  - m. Relationship to adjoining construction clearly indicated.
  - n. Seal and signature of professional engineer if specified.
  - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Number of Copies: Submit two opaque (bond) copies of each submittal. Architect will return one copy.
4. Number of Copies: Submit three 3 opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit [five] 5 copies where copies are required for operation and maintenance manuals. Architect will retain one 1 copy; remainder will be returned.
5. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
6. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
7. Identification: Attach label on unexposed side of Samples that includes the following:
  - a. Generic description of Sample.
  - b. Product name and name of manufacturer.
  - c. Sample source.
  - d. Number and title of appropriate Specification Section.
8. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
  - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
9. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
  - a. Number of Samples: Submit two 2 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
10. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit two 2 sets of Samples. Architect will retain one 1 Sample sets; remainder will be returned
  - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
  - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two 2 sets of paired units that show approximate limits of variations.
  
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
  - 1. Type of product. Include unique identifier for each product.
  - 2. Number and name of room or space.
  - 3. Location within room or space.
  - 4. Number of Copies: Submit two 2 copies of product schedule or list, unless otherwise indicated. Architect, will return one 1 copy.
  
- F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation" for Construction Manager's action.
  
- G. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
  
- H. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
  
- I. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
  
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.

## **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - 3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."



- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- R. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.
  - 2. Required substrate tolerances.
  - 3. Sequence of installation or erection.
  - 4. Required installation tolerances.
  - 5. Required adjustments.
  - 6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
  - 1. Name, address, and telephone number of factory-authorized service representative making report.
  - 2. Statement on condition of substrates and their acceptability for installation of product.
  - 3. Statement that products at Project site comply with requirements.
  - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  - 6. Statement whether conditions, products, and installation will affect warranty.
  - 7. Other required items indicated in individual Specification Sections.
- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

- V. Construction Photographs: Comply with requirements specified in Division 1 Section "Photographic Documentation."
- W. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.
  - 1. Architect will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

### **2.3 DELEGATED DESIGN**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## **PART 3 - EXECUTION**

### **3.1 CONTRACTOR'S REVIEW**

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### **3.2 ARCHITECT'S ACTION**

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. ACCEPTED

2. ACCEPTED AS CORRECTED
  3. REVISE AND RESUBMIT
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**3.3 E-MAIL COMPATIBLE SUBMITTALS**

- A. Submittals, which are transmitted electronically are subject to the same administrative and procedural requirements as those not transmitted electronically.

**END OF SECTION**



## SUBMITTAL TRANSMITTAL

Project: ORHS Ben Martin Track Renovations	Date:
	Architect's Project Number: <b>21034</b>

<b>TRANSMITTAL A</b>	To: <b>Cope Associates, Inc.</b>	Date:	Submittal No.
	From:	By:	Resubmission

Qty.	Reference / Number	Title / Description / Manufacturer	Spec. Section Title and Paragraph / Drawing Detail Reference

<input type="checkbox"/> Submitted for review and approval	<input type="checkbox"/> Substitution involved - Substitution request attached
<input type="checkbox"/> Resubmitted for review and approval	<input type="checkbox"/> Complies with contract requirements
Other remarks on above submission:	

<b>TRANSMITTAL B</b>	To(Consultant):	Attn:	Date Received by Cope Assoc:
	From: Cope Associates, Inc.	By:	Date Transmitted by Cope Assoc:

<input type="checkbox"/> Submitted for review and comments	<input type="checkbox"/> Resubmitted for review and comments
<input type="checkbox"/> One copy retained by sender	<b>Return Due Date to Cope Assoc:</b>
Other remarks on above submission:	

<b>TRANSMITTAL C</b>	To: Cope Associates, Inc.	Attn:	Date Received by (Consultant):
	From (Consultant):	By:	Date Transmitted by (Consultant):

<input type="checkbox"/> Approved	<input type="checkbox"/> Submission Incomplete / Resubmit
<input type="checkbox"/> Approved as noted	<input type="checkbox"/> Not subject to review
<input type="checkbox"/> Approved as noted / Resubmit	<input type="checkbox"/> Provide file copy with corrections identified
<input type="checkbox"/> Revise / Resubmit	<input type="checkbox"/> One copy retained by sender
Other remarks on above submission:	

<b>TRANSMITTAL D</b>	To (Contractor):	Attn:	Date Received by Cope Assoc:
	From Cope Associates, Inc.:	By:	Date Transmitted by Cope Assoc:

Copies:  Owner     Consultants     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_     One copy retained by sender



# SUBCONTRACTORS AND MAJOR MATERIAL SUPPLIERS LIST

Project: ORHS Ben Martin Track Renovations From (Contractor): \_\_\_\_\_  
Oak Ridge, Tennessee Date: \_\_\_\_\_  
 To (A/E): \_\_\_\_\_ A/E Project Number: 21034  
 \_\_\_\_\_ Contract For: \_\_\_\_\_

List Subcontractors and Major Material Suppliers proposed for use on this Project as required by the Construction Documents. Attach supplemental sheets if necessary.

Section Number	Section Title	Firm	Address	Phone Number (Fax Number)	Contact

Attachments

Signed by: \_\_\_\_\_

Date: \_\_\_\_\_

Copies:  Owner  Consultants  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  File

## **SECTION 01 40 00 - QUALITY REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for testing and inspecting allowances.
  - 2. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
  - 3. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 4. Divisions 2 through 16 Sections for specific test and inspection requirements.

#### **1.3 DEFINITIONS**

- A. **Quality-Assurance Services:** Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. **Quality-Control Services:** Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### **1.4 CONFLICTING REQUIREMENTS**

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.



### **1.5 INFORMATIONAL SUBMITTALS**

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Contractor's Quality-Control Manager Qualifications: For supervisory personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
  - 1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
  - 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

### **1.6 CONTRACTOR'S QUALITY-CONTROL PLAN**

- A. Quality-Control Plan, General: Submit quality-control plan within [10] days of Notice to Proceed, and not less than [five] days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  - 1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: Include in quality-control plan a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

## **1.7 QUALITY ASSURANCE**

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:
    - a. Provide test specimens representative of proposed products and construction.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
    - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
    - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
    - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
  2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect[, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect [seven] days in advance of dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow [seven] days for initial review and each re-review of each mockup.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mockups when directed, unless otherwise indicated.
- K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 32.

**1.8 QUALITY CONTROL**

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  - 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
  - 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
  
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  - 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  - 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  - 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
  
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
  
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
  
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
  - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within [30] days of date established for the Notice to Proceed.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## **1.9 SPECIAL TESTS AND INSPECTIONS**

- A. Special Tests and Inspections: Owner will engage a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect[, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect[, with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 TEST AND INSPECTION LOG**

- A. Prepare a record of tests and inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date test or inspection results were transmitted to Architect.
  - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

**3.2 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
  - 2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION**

**SECTION 01 42 00 - REFERENCES**

**PART 1 - GENERAL**

**1.1 DEFINITIONS**

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

**1.2 INDUSTRY STANDARDS**

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

### 1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.
1. AABC - Associated Air Balance Council; [www.aabc.com](http://www.aabc.com).
  2. AAMA - American Architectural Manufacturers Association; [www.aamanet.org](http://www.aamanet.org).
  3. AAPFCO - Association of American Plant Food Control Officials; [www.aapfco.org](http://www.aapfco.org).
  4. AASHTO - American Association of State Highway and Transportation Officials; [www.transportation.org](http://www.transportation.org).
  5. AATCC - American Association of Textile Chemists and Colorists; [www.aatcc.org](http://www.aatcc.org).
  6. ABMA - American Bearing Manufacturers Association; [www.americanbearings.org](http://www.americanbearings.org).
  7. ABMA - American Boiler Manufacturers Association; [www.abma.com](http://www.abma.com).
  8. ACI - American Concrete Institute; (Formerly: ACI International); [www.concrete.org](http://www.concrete.org)
  9. ACPA - American Concrete Pipe Association; [www.concrete-pipe.org](http://www.concrete-pipe.org).
  10. AEIC - Association of Edison Illuminating Companies, Inc. (The); [www.aeic.org](http://www.aeic.org).
  11. AF&PA - American Forest & Paper Association; [www.afandpa.org](http://www.afandpa.org).
  12. AGA - American Gas Association; [www.aga.org](http://www.aga.org).
  13. AHAM - Association of Home Appliance Manufacturers; [www.aham.org](http://www.aham.org).
  14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); [www.ahrinet.org](http://www.ahrinet.org).
  15. AI - Asphalt Institute; [www.asphaltinstitute.org](http://www.asphaltinstitute.org).
  16. AIA - American Institute of Architects (The); [www.aia.org](http://www.aia.org).
  17. AISC - American Institute of Steel Construction; [www.aisc.org](http://www.aisc.org).
  18. AISI - American Iron and Steel Institute; [www.steel.org](http://www.steel.org).
  19. AITC - American Institute of Timber Construction; [www.aitc-glulam.org](http://www.aitc-glulam.org).
  20. AMCA - Air Movement and Control Association International, Inc.; [www.amca.org](http://www.amca.org).
  21. ANSI - American National Standards Institute; [www.ansi.org](http://www.ansi.org).
  22. AOSA - Association of Official Seed Analysts, Inc.; [www.aosaseed.com](http://www.aosaseed.com).
  23. APA - APA - The Engineered Wood Association; [www.apawood.org](http://www.apawood.org).
  24. APA - Architectural Precast Association; [www.archprecast.org](http://www.archprecast.org).
  25. API - American Petroleum Institute; [www.api.org](http://www.api.org).
  26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
  27. ARI - American Refrigeration Institute; (See AHRI).
  28. ARMA - Asphalt Roofing Manufacturers Association; [www.asphaltroofing.org](http://www.asphaltroofing.org).
  29. ASCE - American Society of Civil Engineers; [www.asce.org](http://www.asce.org).
  30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
  31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; [www.ashrae.org](http://www.ashrae.org).
  32. ASME - ASME International; (American Society of Mechanical Engineers); [www.asme.org](http://www.asme.org).
  33. ASSE - American Society of Safety Engineers (The); [www.asse.org](http://www.asse.org).
  34. ASSE - American Society of Sanitary Engineering; [www.asse-plumbing.org](http://www.asse-plumbing.org).
  35. ASTM - ASTM International; [www.astm.org](http://www.astm.org).
  36. ATIS - Alliance for Telecommunications Industry Solutions; [www.atis.org](http://www.atis.org).
  37. AWEA - American Wind Energy Association; [www.awea.org](http://www.awea.org).
  38. AWI - Architectural Woodwork Institute; [www.awinet.org](http://www.awinet.org).
  39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; [www.awmac.com](http://www.awmac.com).
  40. AWPA - American Wood Protection Association; [www.awpa.com](http://www.awpa.com).
  41. AWS - American Welding Society; [www.aws.org](http://www.aws.org).



42. AWWA - American Water Works Association; [www.awwa.org](http://www.awwa.org).
43. BHMA - Builders Hardware Manufacturers Association; [www.buildershardware.com](http://www.buildershardware.com).
44. BIA - Brick Industry Association (The); [www.gobrick.com](http://www.gobrick.com).
45. BICSI - BICSI, Inc.; [www.bicsi.org](http://www.bicsi.org).
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); [www.bifma.org](http://www.bifma.org).
47. BISSC - Baking Industry Sanitation Standards Committee; [www.bissc.org](http://www.bissc.org).
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); [www.bissc.org](http://www.bissc.org).
49. CDA - Copper Development Association; [www.copper.org](http://www.copper.org).
50. CE - Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; [www.electricity.ca](http://www.electricity.ca).
52. CEA - Consumer Electronics Association; [www.ce.org](http://www.ce.org).
53. CFFA - Chemical Fabrics and Film Association, Inc.; [www.chemicalfabricsandfilm.com](http://www.chemicalfabricsandfilm.com).
54. CFSEI - Cold-Formed Steel Engineers Institute; [www.cfsei.org](http://www.cfsei.org).
55. CGA - Compressed Gas Association; [www.cganet.com](http://www.cganet.com).
56. CIMA - Cellulose Insulation Manufacturers Association; [www.cellulose.org](http://www.cellulose.org).
57. CISCA - Ceilings & Interior Systems Construction Association; [www.cisca.org](http://www.cisca.org).
58. CISPI - Cast Iron Soil Pipe Institute; [www.cispi.org](http://www.cispi.org).
59. CLFMI - Chain Link Fence Manufacturers Institute; [www.chainlinkinfo.org](http://www.chainlinkinfo.org).
60. CPA - Composite Panel Association; [www.pbmdf.com](http://www.pbmdf.com).
61. CRI - Carpet and Rug Institute (The); [www.carpet-rug.org](http://www.carpet-rug.org).
62. CRRC - Cool Roof Rating Council; [www.coolroofs.org](http://www.coolroofs.org).
63. CRSI - Concrete Reinforcing Steel Institute; [www.crsi.org](http://www.crsi.org).
64. CSA - Group; [www.csa.ca](http://www.csa.ca).
65. CSA - CSA International; (Formerly: IAS - International Approval Services); [www.csa-international.org](http://www.csa-international.org).
66. CSI - Construction Specifications Institute (The); [www.csinet.org](http://www.csinet.org).
67. CSSB - Cedar Shake & Shingle Bureau; [www.cedarbureau.org](http://www.cedarbureau.org).
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); [www.cti.org](http://www.cti.org).
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; [www.dasma.com](http://www.dasma.com).
71. DHI - Door and Hardware Institute; [www.dhi.org](http://www.dhi.org).
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; [www.eciaonline.org](http://www.eciaonline.org).
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; [www.eima.com](http://www.eima.com).
77. EJMA - Expansion Joint Manufacturers Association, Inc.; [www.ejma.org](http://www.ejma.org).
78. ESD - ESD Association; (Electrostatic Discharge Association); [www.esda.org](http://www.esda.org).
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); [www.intertek.com](http://www.intertek.com).
81. EVO - Efficiency Valuation Organization; [www.evo-world.org](http://www.evo-world.org).
82. FCI - Fluid Controls Institute; [www.fluidcontrolsintstitute.org](http://www.fluidcontrolsintstitute.org).
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); [www.fiba.com](http://www.fiba.com).
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); [www.fivb.org](http://www.fivb.org).
85. FM Approvals - FM Approvals LLC; [www.fmglobal.com](http://www.fmglobal.com).
86. FM Global - FM Global; (Formerly: FMG - FM Global); [www.fmglobal.com](http://www.fmglobal.com).
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; [www.floridarroof.com](http://www.floridarroof.com).
88. FSA - Fluid Sealing Association; [www.fluidsealing.com](http://www.fluidsealing.com).
89. FSC - Forest Stewardship Council U.S.; [www.fscus.org](http://www.fscus.org).
90. GA - Gypsum Association; [www.gypsum.org](http://www.gypsum.org).
91. GANA - Glass Association of North America; [www.glasswebsite.com](http://www.glasswebsite.com).

92. GS - Green Seal; [www.greenseal.org](http://www.greenseal.org).
93. HI - Hydraulic Institute; [www.pumps.org](http://www.pumps.org).
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; [www.hpva.org](http://www.hpva.org).
97. HPW - H. P. White Laboratory, Inc.; [www.hpwhite.com](http://www.hpwhite.com).
98. IAPSC - International Association of Professional Security Consultants; [www.iapsc.org](http://www.iapsc.org).
99. IAS - International Accreditation Service; [www.iasonline.org](http://www.iasonline.org).
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
103. ICEA - Insulated Cable Engineers Association, Inc.; [www.icea.net](http://www.icea.net).
104. ICPA - International Cast Polymer Alliance; [www.icpa-hq.org](http://www.icpa-hq.org).
105. ICRI - International Concrete Repair Institute, Inc.; [www.icri.org](http://www.icri.org).
106. IEC - International Electrotechnical Commission; [www.iec.ch](http://www.iec.ch).
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); [www.ieee.org](http://www.ieee.org).
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); [www.ies.org](http://www.ies.org).
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; [www.iest.org](http://www.iest.org).
111. IGMA - Insulating Glass Manufacturers Alliance; [www.igmaonline.org](http://www.igmaonline.org).
112. IGSHPA - International Ground Source Heat Pump Association; [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu).
113. ILI - Indiana Limestone Institute of America, Inc.; [www.iliai.com](http://www.iliai.com).
114. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); [www.intertek.com](http://www.intertek.com).
115. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); [www.isa.org](http://www.isa.org).
116. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
117. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); [www.isfanow.org](http://www.isfanow.org).
118. ISO - International Organization for Standardization; [www.iso.org](http://www.iso.org).
119. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
120. ITU - International Telecommunication Union; [www.itu.int/home](http://www.itu.int/home).
121. KCMA - Kitchen Cabinet Manufacturers Association; [www.kcma.org](http://www.kcma.org).
122. LMA - Laminating Materials Association; (See CPA).
123. LPI - Lightning Protection Institute; [www.lightning.org](http://www.lightning.org).
124. MBMA - Metal Building Manufacturers Association; [www.mbma.com](http://www.mbma.com).
125. MCA - Metal Construction Association; [www.metalconstruction.org](http://www.metalconstruction.org).
126. MFMA - Maple Flooring Manufacturers Association, Inc.; [www.maplefloor.org](http://www.maplefloor.org).
127. MFMA - Metal Framing Manufacturers Association, Inc.; [www.metalframingmfg.org](http://www.metalframingmfg.org).
128. MHIA - Material Handling Industry of America; [www.mhia.org](http://www.mhia.org).
129. MIA - Marble Institute of America; [www.marble-institute.com](http://www.marble-institute.com).
130. MMPA - Moulding & Millwork Producers Association; [www.wmmpa.com](http://www.wmmpa.com).
131. MPI - Master Painters Institute; [www.paintinfo.com](http://www.paintinfo.com).
132. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; [www.mss-hq.org](http://www.mss-hq.org).
133. NAAMM - National Association of Architectural Metal Manufacturers; [www.naamm.org](http://www.naamm.org).
134. NACE - NACE International; (National Association of Corrosion Engineers International); [www.nace.org](http://www.nace.org).
135. NADCA - National Air Duct Cleaners Association; [www.nadca.com](http://www.nadca.com).
136. NAIMA - North American Insulation Manufacturers Association; [www.naima.org](http://www.naima.org).
137. NBGQA - National Building Granite Quarries Association, Inc.; [www.nbgqa.com](http://www.nbgqa.com).
138. NBI - New Buildings Institute; [www.newbuildings.org](http://www.newbuildings.org).
139. NCAA - National Collegiate Athletic Association (The); [www.ncaa.org](http://www.ncaa.org).
140. NCMA - National Concrete Masonry Association; [www.ncma.org](http://www.ncma.org).
141. NEBB - National Environmental Balancing Bureau; [www.nebb.org](http://www.nebb.org).

142. NECA - National Electrical Contractors Association; [www.necanet.org](http://www.necanet.org).
143. NeLMA - Northeastern Lumber Manufacturers Association; [www.nelma.org](http://www.nelma.org).
144. NEMA - National Electrical Manufacturers Association; [www.nema.org](http://www.nema.org).
145. NETA - InterNational Electrical Testing Association; [www.netaworld.org](http://www.netaworld.org).
146. NFHS - National Federation of State High School Associations; [www.nfhs.org](http://www.nfhs.org).
147. NFPA - National Fire Protection Association; [www.nfpa.org](http://www.nfpa.org).
148. NFPA - NFPA International; (See NFPA).
149. NFRC - National Fenestration Rating Council; [www.nfrc.org](http://www.nfrc.org).
150. NHLA - National Hardwood Lumber Association; [www.nhla.com](http://www.nhla.com).
151. NLGA - National Lumber Grades Authority; [www.nlga.org](http://www.nlga.org).
152. NOFMA - National Oak Flooring Manufacturers Association; (See NWFPA).
153. NOMMA - National Ornamental & Miscellaneous Metals Association; [www.nomma.org](http://www.nomma.org).
154. NRCA - National Roofing Contractors Association; [www.nrca.net](http://www.nrca.net).
155. NRMCA - National Ready Mixed Concrete Association; [www.nrmca.org](http://www.nrmca.org).
156. NSF - NSF International; [www.nsf.org](http://www.nsf.org).
157. NSPE - National Society of Professional Engineers; [www.nspe.org](http://www.nspe.org).
158. NSSGA - National Stone, Sand & Gravel Association; [www.nssga.org](http://www.nssga.org).
159. NTMA - National Terrazzo & Mosaic Association, Inc. (The); [www.ntma.com](http://www.ntma.com).
160. NWFPA - National Wood Flooring Association; [www.nwfa.org](http://www.nwfa.org).
161. PCI - Precast/Prestressed Concrete Institute; [www.pci.org](http://www.pci.org).
162. PDI - Plumbing & Drainage Institute; [www.pdionline.org](http://www.pdionline.org).
163. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
164. RCSC - Research Council on Structural Connections; [www.boltcouncil.org](http://www.boltcouncil.org).
165. RFCI - Resilient Floor Covering Institute; [www.rfci.com](http://www.rfci.com).
166. RIS - Redwood Inspection Service; [www.redwoodinspection.com](http://www.redwoodinspection.com).
167. SAE - SAE International; [www.sae.org](http://www.sae.org).
168. SCTE - Society of Cable Telecommunications Engineers; [www.scte.org](http://www.scte.org).
169. SDI - Steel Deck Institute; [www.sdi.org](http://www.sdi.org).
170. SDI - Steel Door Institute; [www.steeldoor.org](http://www.steeldoor.org).
171. SEFA - Scientific Equipment and Furniture Association (The); [www.sefalabs.com](http://www.sefalabs.com).
172. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
173. SIA - Security Industry Association; [www.siaonline.org](http://www.siaonline.org).
174. SJI - Steel Joist Institute; [www.steeljoist.org](http://www.steeljoist.org).
175. SMA - Screen Manufacturers Association; [www.smainfo.org](http://www.smainfo.org).
176. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; [www.smacna.org](http://www.smacna.org).
177. SMPTE - Society of Motion Picture and Television Engineers; [www.smpite.org](http://www.smpite.org).
178. SPFA - Spray Polyurethane Foam Alliance; [www.sprayfoam.org](http://www.sprayfoam.org).
179. SPIB - Southern Pine Inspection Bureau; [www.spib.org](http://www.spib.org).
180. SPRI - Single Ply Roofing Industry; [www.spri.org](http://www.spri.org).
181. SRCC - Solar Rating & Certification Corporation; [www.solar-rating.org](http://www.solar-rating.org).
182. SSINA - Specialty Steel Industry of North America; [www.ssina.com](http://www.ssina.com).
183. SSPC - SSPC: The Society for Protective Coatings; [www.sspc.org](http://www.sspc.org).
184. STI - Steel Tank Institute; [www.steeltank.com](http://www.steeltank.com).
185. SWI - Steel Window Institute; [www.steelwindows.com](http://www.steelwindows.com).
186. SWPA - Submersible Wastewater Pump Association; [www.swpa.org](http://www.swpa.org).
187. TCA - Tilt-Up Concrete Association; [www.tilt-up.org](http://www.tilt-up.org).
188. TCNA - Tile Council of North America, Inc.; [www.tileusa.com](http://www.tileusa.com).
189. TEMA - Tubular Exchanger Manufacturers Association, Inc.; [www.tema.org](http://www.tema.org).
190. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); [www.tiaonline.org](http://www.tiaonline.org).
191. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).

192. TMS - The Masonry Society; [www.masonrysociety.org](http://www.masonrysociety.org).
  193. TPI - Truss Plate Institute; [www.tpinst.org](http://www.tpinst.org).
  194. TPI - Turfgrass Producers International; [www.turfgrassod.org](http://www.turfgrassod.org).
  195. TRI - Tile Roofing Institute; [www.tilerroofing.org](http://www.tilerroofing.org).
  196. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
  197. UNI - Uni-Bell PVC Pipe Association; [www.uni-bell.org](http://www.uni-bell.org).
  198. USAV - USA Volleyball; [www.usavolleyball.org](http://www.usavolleyball.org).
  199. USGBC - U.S. Green Building Council; [www.usgbc.org](http://www.usgbc.org).
  200. USITT - United States Institute for Theatre Technology, Inc.; [www.usitt.org](http://www.usitt.org).
  201. WA - Wallcoverings Association; [www.wallcoverings.org](http://www.wallcoverings.org)
  202. WASTEC - Waste Equipment Technology Association; [www.wastec.org](http://www.wastec.org).
  203. WCLIB - West Coast Lumber Inspection Bureau; [www.wclib.org](http://www.wclib.org).
  204. WCMA - Window Covering Manufacturers Association; [www.wcmanet.org](http://www.wcmanet.org).
  205. WDMA - Window & Door Manufacturers Association; [www.wdma.com](http://www.wdma.com).
  206. WI - Woodwork Institute; [www.wicnet.org](http://www.wicnet.org).
  207. WSRCA - Western States Roofing Contractors Association; [www.wsrca.com](http://www.wsrca.com).
  208. WWPA - Western Wood Products Association; [www.wwpa.org](http://www.wwpa.org).
- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. DIN - Deutsches Institut fur Normung e.V.; [www.din.de](http://www.din.de).
  2. IAPMO - International Association of Plumbing and Mechanical Officials; [www.iapmo.org](http://www.iapmo.org).
  3. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
  4. ICC-ES - ICC Evaluation Service, LLC; [www.icc-es.org](http://www.icc-es.org).
- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Engineers; [www.usace.army.mil](http://www.usace.army.mil).
  2. CPSC - Consumer Product Safety Commission; [www.cpsc.gov](http://www.cpsc.gov).
  3. DOC - Department of Commerce; National Institute of Standards and Technology; [www.nist.gov](http://www.nist.gov).
  4. DOD - Department of Defense; [www.quicksearch.dla.mil](http://www.quicksearch.dla.mil).
  5. DOE - Department of Energy; [www.energy.gov](http://www.energy.gov).
  6. EPA - Environmental Protection Agency; [www.epa.gov](http://www.epa.gov).
  7. FAA - Federal Aviation Administration; [www.faa.gov](http://www.faa.gov).
  8. FG - Federal Government Publications; [www.gpo.gov/fdsys](http://www.gpo.gov/fdsys).
  9. GSA - General Services Administration; [www.gsa.gov](http://www.gsa.gov).
  10. HUD - Department of Housing and Urban Development; [www.hud.gov](http://www.hud.gov).
  11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; [www.eetd.lbl.gov](http://www.eetd.lbl.gov).
  12. OSHA - Occupational Safety & Health Administration; [www.osha.gov](http://www.osha.gov).
  13. SD - Department of State; [www.state.gov](http://www.state.gov).
  14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; [www.trb.org](http://www.trb.org).
  15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; [www.ars.usda.gov](http://www.ars.usda.gov).
  16. USDA - Department of Agriculture; Rural Utilities Service; [www.usda.gov](http://www.usda.gov).
  17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; [www.ojp.usdoj.gov](http://www.ojp.usdoj.gov).
  18. USP - U.S. Pharmacopeial Convention; [www.usp.org](http://www.usp.org).
  19. USPS - United States Postal Service; [www.usps.com](http://www.usps.com).

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; [www.gpo.gov/fdsys](http://www.gpo.gov/fdsys).
  2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; [www.quicksearch.dla.mil](http://www.quicksearch.dla.mil).
  3. DSCC - Defense Supply Center Columbus; (See FS).
  4. FED-STD - Federal Standard; (See FS).
  5. FS - Federal Specification; Available from DLA Document Services; [www.quicksearch.dla.mil](http://www.quicksearch.dla.mil).
    - a. Available from Defense Standardization Program; [www.dsp.dla.mil](http://www.dsp.dla.mil).
    - b. Available from General Services Administration; [www.gsa.gov](http://www.gsa.gov).
    - c. Available from National Institute of Building Sciences/Whole Building Design Guide; [www.wbdg.org/ccb](http://www.wbdg.org/ccb).
  6. MILSPEC - Military Specification and Standards; (See DOD).
  7. USAB - United States Access Board; [www.access-board.gov](http://www.access-board.gov).
  8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; [www.bearhfti.ca.gov](http://www.bearhfti.ca.gov).
  2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; [www.calregs.com](http://www.calregs.com).
  3. CDHS; California Department of Health Services; (See CDPH).
  4. CDPH; California Department of Public Health; Indoor Air Quality Program; [www.cal-iaq.org](http://www.cal-iaq.org).
  5. CPUC; California Public Utilities Commission; [www.cpuc.ca.gov](http://www.cpuc.ca.gov).
  6. SCAQMD; South Coast Air Quality Management District; [www.aqmd.gov](http://www.aqmd.gov).
  7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; [www.txforestservation.tamu.edu](http://www.txforestservation.tamu.edu).

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. See Division 1 Section "Execution Requirements" for progress cleaning requirements.
- C. See Divisions 2 through 33 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

#### **1.2 DEFINITIONS**

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

#### **1.3 UTILITIES SERVICES FOR CONSTRUCTION PURPOSES**

- A. The Contractor shall furnish and pay the costs of all water and electric power required for construction purposes.
- B. The Contractor shall furnish and install all temporary piping and wiring required for the use of these services during construction and upon completion of the Work shall remove such temporary piping and wiring.

#### **1.4 QUALITY ASSURANCE**

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

#### **1.5 PROJECT CONDITIONS**

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

## **PART 2 - PRODUCTS**

### **2.1 BARRICADES AND SPECIAL CONTROLS**

- A. Provide all temporary barriers and warning signs around the site of the new construction to control access of unauthorized persons to work areas, and as required by law.

### **2.2 TEMPORARY ENCLOSURES**

- A. Provide temporary weathertight enclosures for all exterior openings after walls and roof of new building are constructed when it is necessary to protect the Work from the weather and to permit the use of temporary heat

### **2.3 SANITARY FACILITIES**

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

### **2.4 BULLETIN BOARD AND JOB SIGN**

- A. On or near the field office, the Contractor shall install a bulletin board upon which to post legally required notices. The bulletin board shall be of adequate size to contain all required notices and to be so constructed as to protect the postings from obliteration by the weather.
- B. Where directed by Architect, Contractor shall provide and install job sign per attached drawing.

### **2.5 RODENT AND VERMIN CONTROL**

- A. Provide ample and suitable refuse containers with covers. The Contractor shall be responsible for containing and removing from the site all refuse from meals eaten on the site and other rodent or vermin attracting refuse.

### **2.6 TEMPORARY FACILITIES**

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Provide temporary telephone, answering and facsimile machine in office as required.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

### **2.7 EQUIPMENT**

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### **3.2 SUPPORT FACILITIES INSTALLATION**

- A. General: Comply with the following:
  - 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
  - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Project Identification and Temporary Signs: Provide Project identification and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  - 1. Provide temporary, directional signs for construction personnel and visitors.
  - 2. Maintain and touchup signs so they are legible at all times.

**END OF SECTION**



## **SECTION 01 60 00 - PRODUCT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for products selected under an allowance.
  - 2. Division 1 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 3. Divisions 2 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### **1.3 DEFINITIONS**

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

#### **1.4 SUBMITTALS**

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
    - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
  4. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  5. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A.
  2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

- e. Samples, where applicable or requested.
  - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - j. Cost information, including a proposal of change, if any, in the Contract Sum.
  - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Deduct Change Order or Architects Supplementary Instructions.
  - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 1 Section "Submittal Procedures."
    - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

## **1.5 QUALITY ASSURANCE**

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

## **1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units.
  - 2. Store materials in a manner that will not endanger Project structure.
  - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 4. Store cementitious products and materials on elevated platforms.
  - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 7. Protect stored products from damage and liquids from freezing.

## **1.7 PRODUCT WARRANTIES**

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  - 1. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  - 2. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. **Special Warranties:** Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1. **Manufacturer's Standard Form:** Modified to include Project-specific information and properly executed.
  - 2. **Specified Form:** When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

3. Refer to Divisions 2 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

## **PART 2 - PRODUCTS**

### **2.1 PRODUCT SELECTION PROCEDURES**

- A. **Manufacturers:** Equipment specified as a basis-of-design product sets forth not only quality, standard/optional features but also equipment connection requirements. Due to the variations of equipment connection requirements from manufacturer to manufacturer the Contractor shall be responsible for any differences in connection requirements, when providing a listed acceptable equipment manufacturer other than the basis-of-design product. Those connections include but are not limited to ductwork, plumbing and electrical, as required.
- B. **General Product Requirements:** Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. **Standard Products:** If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Architect will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. **Or Equal:** Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- C. **Product Selection Procedures:**
1. **Product:** Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
  2. **Manufacturer/Source:** Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
  3. **Products:** Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  4. **Manufacturers:** Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
  5. **Available Products:** Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
  6. **Available Manufacturers:** Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies

- with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
  8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
  9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
    - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
  10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## **2.2 PRODUCT SUBSTITUTIONS**

- A. Timing: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Contractor shall be responsible for costs associated with implementation or inclusion of a Product Substitution, including reimbursement of Designer's cost and cost to modify work of other trades to accept Product Substitution.
- C. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  2. Requested substitution does not require extensive revisions to the Contract Documents.

3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

### **2.3 COMPARABLE PRODUCTS**

- A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

## **PART 3 - EXECUTION**

### **3.1 RESPONSIBILITIES OF CONTRACTOR**

- A. General: The responsibility for determining dimensions, utility requirements, fitting of work with other trades, sequencing and coordination of work, for Product Substitutions and Comparable Products rests solely with the Contractor.

### **END OF SECTION**

**SECTION 01 61 00 - SUBSTITUTION REQUEST FORM**

<b>To:</b>	<b>Project:</b>
<b>Attention:</b>	<b>Project No.:</b>
<b>Specified Item Name and Manufacturer:</b>	<b>Proposed Substitute Item Name and Manufacturer:</b>

1. The following are attached (mark all that apply):

- COMPLETE DESCRIPTION
- CATALOG
- LABORATORY TESTS
- SPEC DATA

2. This substitution will have the following effects on dimensions, gauges, weights, etc.:

3. This substitution will have the following effects on wiring, piping, ductwork, etc.:

4. This substitution will have the following effects on other trades:

5. This substitution will have the following effect on construction Schedules:

6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:

7. Manufacturer guarantees for the substitute(s) and the specified product(s) are (check one):

\_\_\_\_\_ THE SAME \_\_\_\_\_ DIFFERENT (if different, explain below)



8. Information on the availability of maintenance services and replacement materials for proposed substitute(s) is provided on an attached sheet if applicable.

\_\_\_\_\_ ATTACHED \_\_\_\_\_ NOT APPLICABLE

9. Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s) are provided on an attached sheet if applicable.

\_\_\_\_\_ ATTACHED \_\_\_\_\_ NOT APPLICABLE

10. If the proposed substitution is accepted, it will result in:

\_\_\_\_\_ NO COST IMPACT  
\_\_\_\_\_ A COST INCREASE OF \$ \_\_\_\_\_  
\_\_\_\_\_ A COST DECREASE OF \$ \_\_\_\_\_

Attach itemization if a change in cost is indicated.

11. License fees or royalties are pending on the proposed substitute.

\_\_\_\_\_ NO \_\_\_\_\_ YES (if yes, explain below)

12. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request. Payment does not guarantee acceptance.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

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**SUBMITTED BY:**

Signature:	Date:
Printed Name:	Firm Name:

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**DESIGNER REVIEW AND COMMENTS:**

\_\_\_\_\_ ACCEPTED \_\_\_\_\_ REJECTED

\_\_\_\_\_ REJECTED (received too late)

COMMENTS:

\_\_\_\_\_ REJECTED (submitted incomplete)

Signature:	Date:
Printed Name:	Firm Name:

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END OF SECTION

## **SECTION 01 70 00 - EXECUTION REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. General installation of products.
  - 2. Progress cleaning.
  - 3. Starting and adjusting.
  - 4. Protection of installed construction.
  - 5. Correction of the Work.
  
- B. See Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

#### **1.2 SUBMITTALS**

- A. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
  
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

#### **1.3 QUALITY ASSURANCE**

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.

- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
  
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
  
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
  
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

### **3.3 INSTALLATION**

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### **3.4 PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

- D. **Installed Work:** Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. **Concealed Spaces:** Remove debris from concealed spaces before enclosing the space.
- F. **Exposed Surfaces in Finished Areas:** Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. **Waste Disposal:** Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. **During handling and installation,** clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. **Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.** Adjust and lubricate operable components to ensure operability without damaging effects.
- J. **Limiting Exposures:** Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### **3.5 STARTING AND ADJUSTING**

- A. **Start equipment and operating components to confirm proper operation.** Remove malfunctioning units, replace with new units, and retest.
- B. **Adjust operating components for proper operation without binding.** Adjust equipment for proper operation.
- C. **Test each piece of equipment to verify proper operation.** Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. **Manufacturer's Field Service:** If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

### **3.6 PROTECTION OF INSTALLED CONSTRUCTION**

- A. **Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.**
- B. **Comply with manufacturer's written instructions for temperature and relative humidity.**

**3.7 CORRECTION OF THE WORK**

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

**END OF SECTION**

## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Warranties.
  - 3. Final cleaning.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  - 2. Division 1 Section "Photographic Documentation" for submitting Final Completion construction photographs.
  - 3. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
  - 4. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 5. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 6. Division 1 Section "Demonstration and Training" for requirements for instructing Owner's personnel.
  - 7. Divisions 2 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### **1.3 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  13. Complete final cleaning requirements, including touchup painting.
  14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.

#### **1.4 FINAL COMPLETION**

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes, if available.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.



**1.5 CORRECTION OF THE WORK**

- A. Cost for additional testing, inspections and compensation for the Architect's services and expenses resulting from the correction of previously rejected work, shall be at the Contractor's expense.

**1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
  - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  - 3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.

**1.7 WARRANTIES**

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.
- D. Warranty Inspection:
  - 1. A Warranty Inspection will be scheduled and conducted at the project site prior to one year from the date Substantial Completion is achieved, but as close to the end of that year as is reasonably possible.

2. The Warranty Inspection will be attended by at least one representative of the Owner, Designer and Contractor.
3. The Warranty Inspection is intended to be an opportunity for the Contractor to become aware of any outstanding corrections needed pursuant to the basic one-year warranty of the Work.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  1. Provide special cleaning requirements, which may be identified in Part 3 of Sections in Divisions 2 through 33.
  2. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove labels that are not permanent.
  - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - n. Replace parts subject to unusual operating conditions.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION**



Project: ORHS Ben Martin Track Renovations From (A/E): \_\_\_\_\_  
Oak Ridge, Tennessee Site Visit Date: \_\_\_\_\_  
 To (Contractor): \_\_\_\_\_ A/E Project Number: 21034  
 \_\_\_\_\_ Contract For: \_\_\_\_\_

The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Item Number	Room Number (Area)	Location	Description	Correction/Completion Date	Verification A/E Check
-------------	--------------------	----------	-------------	----------------------------	------------------------

Attachments

Signed by: \_\_\_\_\_

Date: \_\_\_\_\_

Copies:  Owner  Consultants  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  File

## **SECTION 01 78 10 - PROJECT RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Sections include the following:
  - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
  - 2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Divisions 2 through 33 Sections for specific requirements for Project Record Documents of the Work in those Sections.

#### **1.3 SUBMITTALS**

- A. Record Drawings: Comply with the following:
  - 1. Submit one set of Marked-up Record Prints.
- B. Record Specifications:
  - 1. Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data:
  - 1. Submit one copy of each Product Data submittal.
  - 2. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

## **PART 2 - PRODUCTS**

### **2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly

prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
  3. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## **2.2 RECORD SPECIFICATIONS**

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  5. Note related Change Orders and Record Drawings where applicable.

## **2.3 RECORD PRODUCT DATA**

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders and Record Drawings where applicable.

## **2.4 MISCELLANEOUS RECORD SUBMITTALS**

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## **PART 3 - EXECUTION**

### **3.1 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

**END OF SECTION**



## **SECTION 01 78 20 - OPERATION AND MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Maintenance manuals for the care and maintenance of products, materials, finishes systems and equipment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 1 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 2 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

#### **1.3 DEFINITIONS**

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### **1.4 SUBMITTALS**

- A. Final Submittal: Submit one copy of each manual in final form at least 15 Insert number days before final inspection. Architect will return copy with comments within 15 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
  - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
  - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

### 2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  - 1. Type of emergency.
  - 2. Emergency instructions.
  - 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  - 1. Fire.

2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

## 2.4 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.

4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

## 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures,

maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard printed maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."
- G. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

**SECTION 01 82 00 - DEMONSTRATION AND TRAINING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training videotapes.
- B. Related Sections include the following:
  - 1. Division 1 Section "Project Management and Coordination" for requirements for pre-instruction conferences.
  - 2. Divisions 2 through 33 Sections for specific requirements for demonstration and training for products in those Sections.

1.3 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
  - 1. At completion of training, submit two (2) complete training manual(s) for Owner's use.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
- D. Demonstration and Training Videos: Submit two (2) copies within seven (7) days of end of each training module.
  - 1. Identification: On each copy, provide an applied label with the following information:
    - a. Name of Project.
    - b. Name and address of photographer.
    - c. Name of Architect.
    - d. Name of Contractor.



- e. Date videotape was recorded.
  - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
2. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video. Include name of Project and date of video on each page.

#### 1.4 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  - 1. Inspect and discuss locations and other facilities required for instruction.
  - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  - 3. Review required content of instruction.
  - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

#### 1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved.

### PART 2 - PRODUCTS

#### 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

1. HVAC systems.
  2. HVAC instrumentation and controls.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project Record Documents.
    - e. Identification systems.
    - f. Warranties and bonds.
    - g. Maintenance service agreements and similar continuing commitments.
  3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.
  4. Operations: Include the following, as applicable:
    - a. Startup procedures.
    - b. Equipment or system break-in procedures.
    - c. Routine and normal operating instructions.
    - d. Regulation and control procedures.
    - e. Control sequences.
    - f. Safety procedures.
    - g. Instructions on stopping.
    - h. Normal shutdown instructions.
    - i. Operating procedures for emergencies.
    - j. Operating procedures for system, subsystem, or equipment failure.
    - k. Seasonal and weekend operating instructions.
    - l. Required sequences for electric or electronic systems.
    - m. Special operating instructions and procedures.

5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

#### 3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  1. Owner will furnish an instructor to describe Owner's operational philosophy.

- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Architect, with at least seven days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a written performance-based test.
- E. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

### 3.3 DEMONSTRATION AND TRAINING VIDEO

- A. General: Engage a qualified commercial photographer to record demonstration and training video. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video Format: Provide high-quality digital media.

END OF SECTION

**SECTION 02 41 16 - SITE DEMOLITION**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Removal and disposal of designated foundations, pavements, concrete, curbs, culverts, utilities and other structures.

**1.2 RELATED WORK**

- A. Section 311100: Clearing and Grubbing
- B. Section 312213: Site Excavation

**1.3 QUALITY ASSURANCE**

- A. Contractor Qualifications: Minimum of 5 years experience in demolition of comparable structures.
- B. Requirements of Regulatory Agencies:
  - 1. Comply with requirements of codes.
  - 2. Comply with requirements of local Public Health Authority.
  - 3. Comply with local utility companies and/or utility districts.

**1.4 SUBMITTALS**

- A. Certificates of severance of utility services.
- B. Permit for transport and disposal of debris.
- C. Demolition procedures and operational sequence for review by Owner's Representative.

**1.5 JOB CONDITIONS**

- A. Protection:
  - 1. Erect barriers, fences, guard rails, enclosures, chutes, and shoring to protect structures, and utilities remaining intact.
  - 2. Protect designated trees and plants from damage.
- B. Maintaining Traffic
  - 1. Ensure minimum interference with roads, street, driveways, sidewalks, and adjacent facilities.
  - 2. Do not close or obstruct streets, sidewalks, alleys or passageways without permission from authorities having jurisdiction.
  - 3. If required by governing authorities, provide alternate routes around closed or obstructed traffic ways.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare adjacent areas to prevent injury, movement or settlement of structures which are to remain.
- B. Arrange for, and verify termination of utility services to include removing meters and capping lines.
- C. Remove items scheduled to be salvaged for Owner, and place in designated storage area.

3.2 DEMOLITION

- A. Remove concrete pavement, base, curbs, gutters, sidewalks, driveways, etc. And dispose of as follows:
  - 1. Dispose of items which are not more than two feet below subgrade elevation.
  - 2. Break items more than two feet below subgrade elevation into sizes not to exceed twelve inches in maximum dimension and leave in place, unless it interferes with succeeding items of construction.
  - 3. Stockpile topsoil, ballast, gravel other pavement materials when required.
- B. Coordinate removal and relocation of power poles, traffic signal poles, street lighting, telephone lines and site lighting, with the local electric utility.
- C. Remove existing water services, sanitary sewer and storm drainage pipe and structures as indicated and as necessary to facilitate new construction.
- D. Remove old foundations, cisterns, etc., which may be encountered within the building area.

PART 4 - DEBRIS REMOVAL

- A. Promptly remove demolition debris from site.
- B. Obtain permission from applicable regulatory authority for disposal of debris to waste disposal site.
- C. Do not store or burn materials on site.

**END OF SECTION 02 41 16**

**SECTION 26 00 00**  
**GENERAL ELECTRICAL**

**PART 1 GENERAL**

**1.01 OTHER CONDITIONS**

- A. Applicable provisions of the General conditions, Supplementary Conditions, and Division 1, General Requirements, apply to the Work under this Section.

**1.02 SCOPE OF WORK**

- A. The work included under this specification consists of, but is not limited to, work as indicated on the drawings and hereinafter specified in Division 26. Without limiting the generality implied by the drawings and specifications, electrical consists of furnishing all materials, accessories, tools, and labor required and incidental thereto, to provide:
  - 1. New power service.
  - 2. A complete system of conduit and new conductors to supply electricity for the new field lighting poles.
  - 3. Panelboards and transformer.
  - 4. Field lighting system for track.

**1.03 RELATED WORK**

- A. Architectural and Civil drawings.

**1.04 REFERENCE STANDARDS**

- A. Make entire electrical installation in strict accordance with the requirements of all city, county, state, or federal codes of law having jurisdiction, the requirements and recommendations of the Board of Fire Underwriters, including all amendments and/or additions to said codes, laws, requirements, and recommendations and the requirements and recommendations of the Power Company.
- B. Should any work shown on the drawings or herein specified be construed as being contrary to or not conforming to the previously mentioned Codes, etc., bring it to the attention of the Architect before executing the work in conformity with the various codes, etc., without additional cost to the owner, but not until the matter in question has been reviewed by the Architect.
- C. Should any work shown on the drawings or herein specified be more rigid as to requirements than the requirements of the various codes, the drawings and specifications in executing the work.
- D. File with proper authorities all necessary drawings as required by various codes, laws, ordinances, or other requirements.
- E. Obtain and pay for all permits and for all required inspection certificates. Pay necessary fees.

**1.05 WARRANTY-GUARANTEE**

- A. Warrant and guarantee that all work executed under this section of the specifications will be free from defects of materials and workmanship for a period of one year from the date of final acceptance of the building. The above parties further agree that they will, at their own expense, repair and replace all such defective work and all other work damaged thereby which defective during the term of the warranty-guarantee.

**1.06 ARCHITECTURAL DRAWINGS**

- A. Refer to architectural and civil drawings for details such as dimensions, materials, etc.

## **PART 2 PRODUCTS**

### **2.01 SUBMITTALS**

- A. Manufacturer's Data: Submit copies of manufacturer's specifications, descriptions, illustrations, and installation instructions for each type of manufactured product to include: Panelboards and field lighting systems intended for use on this project. Submittals shall be neatly organized in electronic "pdf" file format.
- B. Include manufacturer's certification where required to show compliance with these specifications. Indicate by transmittal form that a copy of each instruction has been distributed to the installer.
- C. Furnish operating and maintenance instructions applying to equipment installed in conjunction with this contract; include parts lists, wiring diagrams, catalog data, stamped approval submittal data, and operational checkout data as called for in these specifications, bound in hardback binders. Instructions shall be submitted to the Architect for approval at least one month in advance of initial system start-up.

### **2.02 MATERIALS**

- A. Materials shall not be ordered until architect's review of submittal material has been made. They shall be new and unused and the manufacturers standard product and the latest designs.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. The electrical drawings which show the work included are diagrammatic only; the locations, routing, etc., of the various fixtures, items of equipment, wiring, etc., are approximate only. The entire installation is subject to such deviations, modifications, rerouting, etc., as may be necessary to obtain a proper coordination of the work with that of all other trades.
- B. Carefully check and become familiar with the above-mentioned drawings, and frequently consult with all other trades so that the work may proceed as a harmonious whole.
- C. Installer shall defer the installation of all electrical fixtures liable to damage. After fixtures are permanently installed, completely protect against breaking, damage, or the depositing of any waste material therein until the system is accepted.

### **3.02 COORDINATION**

- A. Carefully check locations, layouts, and dimensions of all items to be installed under this section with the above-mentioned drawings, and coordinate with all trades affected.
- B. Any work installed without properly checking and coordinating same as above provided, which as a result interferes with the proper installation of the work of other trades, is to be removed and properly reinstalled without additional cost to the owner.

### **3.03 PROTECTION AND CLEANING**

- A. Protect work, fixtures, and materials at all times. Tightly cover and protect equipment against dirt, water, chemical, or mechanical injury. At final completion of all work to be thoroughly cleaned and delivered in a perfect unblemished condition.
- B. Touch-up all damaged paint surfaces on equipment to match original paint.

### **3.04 INITIAL OPERATION OF EQUIPMENT**

- A. Give all equipment furnished in the contract an operational test prior to final acceptance. Assist the Owner in the initial operation when the owner operates the building and equipment. Instruct the owner's personnel in the proper operation and maintenance of all the equipment furnished under this section of the specifications.

**END OF SECTION**



**SECTION 26 05 19**  
**600 VOLT CONDUCTORS**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install a complete system of conductors for branch wiring and feeder wiring as shown on drawings and as called for hereinafter.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. The minimum size of conductor for power, lighting, and other wiring shall be No. 12 AWG unless specified otherwise. All conductors No. 10 and smaller shall be solid. All conductors No. 8 and larger shall be stranded.
- B. Conductors shall be copper. Conductor insulation shall be "THHN/THWN".

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Color coded conductors shall be used throughout in conformance with the National Electrical Code. Use pressure-type connectors. For #6 AWG and smaller use "Scotch-lock" connectors. For sizes #4 AWG and larger, use Burndy "Versi-taps" or Thomas & Betts "Lock-tite" connectors.

**END OF SECTION**

**SECTION 26 05 26**  
**ELECTRICAL SERVICE AND GROUNDING**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Electrical power service for the building shall be taken overhead at 240/480-volts, single-phase, 3-wire as indicated on drawings and as called for hereinafter.
- B. Arrange and provide for metering as required by Oak Ridge Electric Department.
- C. Pay "Aid to Construction" charges required by Oak Ridge Electric Department for new service.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Materials shall be as specified elsewhere in these specifications.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. At new service, provide two (2) 3/4" x 10'0" long driven copperweld grounds. From these ground rods, extend a bare code sized copper grounding conductor and bond to ground bus and neutral bus in main distribution panel. Bonding connections at ground rods shall be by "Cadweld" process. Locate ground rods minimum 15'0" apart from each other. Provide grounding bushings on all conduits departing main panel.
- B. Provide a separate code-sized insulated grounding conductor in all feeder and branch circuit conduit runs. Separate grounding conductor is generally not indicated on electrical drawings but shall be required.
- C. Ground equipment and lighting fixtures in accordance with the Code.

**END OF SECTION**

**SECTION 26 05 33**  
**CONDUIT**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install conduit runs for the wiring as illustrated on the drawings and called for hereinafter.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Conduit shall be electro-galvanized or sheradized steel. Stamp each length with name and trademark of manufacturer and stamp of approval of National Board of Fire Underwriters.
- B. Insulated bushings shall be used on rigid conduit one inch and larger. EMT to have "insulated throat" connectors.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Exterior underground conduit runs shall be run in Schedule 40 PVC conduit.
- B. Galvanized rigid steel conduit shall be utilized where conduits are exposed.
- C. Protect threads during storage. Take every precaution to prevent entry of water and foreign matter in conduit during construction. Swab trapped runs prior to pulling wire. Install factory conduit caps on conduit stubs during construction.
- D. Cut conduit square, ream smooth, thread properly and full. Paint job cut male threads with conductive paint prior to making up a joint.
- E. Equip all conduit terminated in other than threaded hubs with double locknuts, "Bondnut" type, drawn up tight. Install bushing.
- F. Where exposed: Organize the runs into groups and coordinate with other trades to avoid interference.

**END OF SECTION**

**SECTION 26 05 34**  
**BOXES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish boxes as required. Also, pull boxes and junction boxes shall be furnished and installed as required.

**PART 2 PRODUCTS**

**2.01 WALL BOXES**

- A. Provide special sized boxes where required.

**2.03 MANUFACTURER**

- A. Boxes and fittings shall be Appleton, Steel City, Raco, Efcor, Crouse-Hinds, or equal.

**2.04 FABRICATION**

- A. Pull and junction boxes shall be galvanized or sherardized sheet metal or code thickness with lapped and welded joints and with 3/4" flange. They shall be rigidly supported on ceiling or wall. Conduit runs entering a box shall not be considered as adequate support.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install pull and/or junction boxes in conduit lines wherever necessary to avoid excessive length of runs or number of bends in run. No run shall exceed 100 feet without a pull box.
- B. Pull and junction boxes shall be accessible and sized in accordance with provisions of Article No. 370-18 of latest edition of National Electrical Code.
- C. Pull and junction boxes shall be installed so that cover shall be accessible at all times.

**END OF SECTION**

**SECTION 26 05 53**  
**EQUIPMENT IDENTIFICATION**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Provide identification for electrical equipment as set forth hereinafter.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Products shall be as set forth in other sections of specifications.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Furnish and install engraved, laminated phenolic nameplates for all safety switches, panelboards, and other electrical equipment supplied for the project for identification of equipment, controlled, served, phase, voltage, etc. Nameplates shall be securely attached to equipment with self-tapping, stainless steel screws and shall identify equipment controlled, attached, etc. Letters shall be approximately 1/2" high, minimum. Embossed, self-adhesive plastic tape is not acceptable for marking equipment. Nameplate material colors shall be:
- B. All empty conduit runs in conduit with conductors for future use shall be identified for use and shall indicate where they terminate. Identification shall be tags, string, or wire attached to conduit or outlet.
- C. All outlet boxes, junction boxes, and pullboxes shall have their covers and exterior visible surfaces painted with colors painted to match the surface color scheme outlined above. This includes covers on boxes above lift-out and other type accessible ceilings.

**END OF SECTION**

**SECTION 26 05 74**  
**EXCAVATION AND BACKFILLING**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Perform necessary trenching and backfilling to accommodate the underground electrical lines as shown on the drawings and specified hereinafter. Excavated material beyond that required for filling shall be removed from the site. All excavation performed on this project shall be unclassified.

**PART 2 PRODUCTS**

**2.01 PAVEMENT CONSTRUCTION**

- A. All pavements which are cut, trenched, or damaged as a result of work on this project shall be repaired or replaced by the contractor as part of the contract and at no additional cost to the Owner.
- B. All grades, slopes, etc., shall be such that the finished pavement as repaired or replaced shall match the grades, slopes, etc., on the existing adjoining pavements.

**2.02 CONCRETE CURBS, GUTTERS, AND WALKS**

- A. All concrete curbs, gutters, and walks which are cut, trenched, or damaged as a result of work on this project shall be repaired or replaced by the contractor as part of contract and at no additional cost to the Owner.
- B. Concrete strength shall be 4000 psi.
- C. Concrete shall be air entrained. Concrete work shall conform to the provisions of ACI 301-72.
- D. Existing surfaces of areas to be patched or where concrete is to be replaced shall be cleaned and coated with a bonding compound before applying the patch or replacement material. The bonding compound shall be Larsen Products Corporation "Weldcrete" or equal by Right Pointe Company or Fox Industries.
- E. Concrete curbs, gutters, and walks shall be restored to the grades, thicknesses, and dimensions to match the adjoining existing items but shall have a thickness of not less than 4".
- F. Curbs, gutters, and walks shall receive a soft broom finish.

**2.03 LAWNS AND GROUNDS**

- A. The work includes the restoration of the ground trenches or otherwise voided of grass by the contractor to a condition ready for seeding.
- B. The ground surface shall be mounted and the top four inches of soil shall be free of stones, roots, cable, wire, sticks, and other material which may be harmful to plant growth or be a hindrance to subsequent mowing or maintenance operations.
- C. The backfill having been "tamped", mounted, and "settled", shall be scarified for a depth of at least two inches. The ground raked smooth to the proper grades and ready for seeding.
- D. The application of seeding and fertilizers shall be by the Contractor and is included in this contract.
- E. Within one year of the completion of the work the Contractor shall return to the site to correct to the satisfaction of the Owner the following:
  - 1. Paving settlements of 1/4 inch or greater for paving repaired or replaced by the contractor.

2. Lawn and ground settlements of 1/2 inch or greater for areas originally disturbed by the contractor.
3. Crushed stone shall be No. 17 size, 3/4" to 1/2".
4. In sod areas replace with sod as directed to match the sod used in the areas of excavation.

**PART 3 EXECUTION**

**3.01 DESCRIPTION**

- A. Excavated material backfill for lawn and earth areas shall be replaced in layers not exceeding 8 inches deep and tamped for 95% compaction. Where trenches occur under sidewalks, streets, curbs, and gutters, the backfill shall be crushed stone with the concrete and asphalt replaced to match the existing paving. Where excavation occurs in planting areas, grass areas, the planting, shrubbery, etc., shall be replaced and properly watered to insure continued growth. The seeded areas shall be lightly covered with straw to maximize the moisture retention and growth process of the grass.

**END OF SECTION**

**SECTION 26 22 13**  
**DRY TYPE TRANSFORMERS**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install dry-type transformer to convert from 480-volts to 120/240-volts as called for on the drawings and specified hereinafter.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. The transformer will be similar and equal to Square D Company or equal by Siemens, General Electric, and Eaton.
- B. Provide transformer with a totally enclosed non-ventilated (TENV) housing for outdoor use.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Ground the secondary neutrals and the housings.

**END OF SECTION**



**SECTION 26 24 16**  
**PANELBOARDS**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install panelboards with circuit breaker equipment as indicated on drawings and specified hereinafter.
- B. Shop drawings shall be submitted for approval. Shop drawings shall be specific indicating busing, breaker dimensions, gutter dimension, number size, trip, and interrupting capacity of all circuits.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Branch circuit panelboards shall be of the circuit breaker, dead-front safety type equal to Square D types "NQ" or "NF" with contents as indicated on panel scheduled, shall bear approved device label of UL, and shall meet all applicable requirements of National Electrical Manufacturers Association. Panelboards shall be the product of either Square D Company, Siemens, General Electric, or Eaton.
- B. Bus shall be copper.
- C. Number of branch circuits, their rating, number of poles arrangements, etc., are indicated on drawings.
- D. Panelboards shall have lugs (both main lugs and branch circuit lugs) suitable and UL approved for both aluminum and copper conductors. Such panelboards shall have their breakers labeled and approved by UL.
- E. Provide neutral bars for all 4-wire system feeders. Isolate such neutral bars from the panel box.
- F. Panels shall have a separate "ground bar" installed with lugs or connectors on bar. Such bar shall be grounded to panel box.
- G. Bus bars shall be of sequence-phase type arranged for 240/480-volts or 120/240-volts, single-phase, 3-wire mains as indicated on drawings. All circuits shown as common neutral shall be installed in accordance with National Electrical Code.
- H. Balance all circuits in a panel to achieve not more than 10 percent unbalanced neutral current in panel feeder. Panel circuit numbering shall be revised as necessary and arranged to facilitate above.
- I. Multiple breakers shall have common trip. Trip indication shall be as indicated by breaker handle moving to a position other than ON or OFF. Equip doors on panels with chrome-plated lock and a catch with two keys supplied for each lock, concealed hinges and attachment means. Panelboards shall be flush or surface mounted as required.
- J. Provide typed or printed directory cards under plastic on doors. Submit detailed drawings for approval showing size of cabinets, trim, detail for busing, locks, method of numbering, voltage, phase, etc., and obtain approval from Architect before manufacture is commenced.
- K. Circuit breakers shall be fully rated and temperature rated for a 40 degrees C. ambient. All panelboards shall have lugs (both main lugs and branch circuit lugs) suitable and UL approved for aluminum and copper conductors. Such panelboards shall have their breakers labeled and approved by UL.

- L. Breakers shall be of thermal magnetic type, sized and numbered as indicated on schedule on drawings, and shall be quick-make, with trip indication shown by a handle position other than ON or OFF with trip on all multipole breakers.
- M. Minimum short circuit interrupting capacity shall be as indicated on panel schedule.
- N. Panelboard fronts shall have concealed hinges and attachment bolts, be complete with door cylinder lock and catch, all keyed alike. Fronts shall have adjusting indicating trim clamps and Bakelite nameplates engraved to indicate device, panel, or motor being served. Spare breakers and spaces only shall have nameplates with no engraving. Secure all nameplates to panelboard trim with two round head sheet metal screws.
- O. Panelboards shall be UL approved. Panelboard main sizes, branch circuit rating, and mounting shall be as indicated on plans. Shop drawings shall be submitted for approval. Shop drawings shall be specific showing busing, breaker dimensions, gutter dimensions, spare space dimensions, number, size, trip, and interrupting capacity on all circuits. Standard factory work sheets will not be acceptable as shop drawings.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Unless directed otherwise, panelboards shall be mounted to have the top 6 feet clear above finished floor.
- B. The directories within each panelboard shall be properly filled out, so as to have a comprehensive understanding of the loads to which each circuit breaker is connected. They shall be filled out by use of a typewriter.
- C. Panelboards shall be painted to match adjacent walls and labeled inside with a suitable engraved, laminated plastic plate to identify the panelboard designation and its voltage.

**END OF SECTION**

**SECTION 26 27 26**  
**WIRING DEVICES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install plug receptacles, etc., as specified hereafter and shown on the drawings. Devices offered as a substitute to those specified will be carefully checked to see that quality such as grounding continuity, retention force for insertion devices, are equal to those specified.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Duplex plug receptacles shall be tamper resistant type unless not required by code, in which case specification grade devices shall be utilized. All devices shall have a minimum rating of 20-amperes for the voltage service applied. Provide ground fault circuit interrupter (GFCI) type devices where indicated on drawings.
- B. Coverplates: Use stainless steel coverplates.
- C. Approved manufacturers: Pass & Seymour, Hubbell, Leviton, G.E. Eagle, Bryant, Arrow Hart.
- D. Device color shall be ivory.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Installation of devices shall be in accord with the manufacturer's recommendations. Grounding devices such as jumper straps between the device grounding pole and the junction box, or the connection of a grounding conductor will be required at each plug receptacle. Where metal conduit serves the outlet box, a device using a "UL" listed grounding arrangement making use of the contact between the yoke and the device box is approved for use.

**END OF SECTION**

**SECTION 26 28 16**  
**SAFETY SWITCHES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install fuse safety switches and/or disconnect switches as called for on the drawings, and as may be otherwise required by the Codes.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Safety switches shall be heavy-duty, horsepower rated, quick-make, quick-break with arc shields with enclosed construction.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install where called for on the drawings and/or as required by the National Electrical Code.
- B. Where disconnect or safety switches are called for away from walls, a suitable support shall be provided to allow the switch to be in a position of approximately 4-1/2 feet above floor. Where necessary, provide a steel frame attached to the floor or overhead structural system or both. Switches may be mounted on equipment where specific approval is realized from the supplier of the equipment, so as not to interfere with normal and ready maintenance of this equipment.

**END OF SECTION**

**SECTION 26 43 13**  
**SURGE PROTECTION DEVICES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. This section describes the materials and installation requirements for Surge Protection Devices (SPD's) formally known as Transient Voltage Surge Suppressors (TVSS) as shown on the drawings and herein specified at main and branch circuit distribution panels.

**1.02 REFERENCES**

- A. ANSI/IEEE C62.41-1991 and C62.45-1992.  
B. National Electrical Manufacturers Association, NEMA LS-1, Revision 2007.  
C. National Fire Protection Association, NFPA 70.  
D. Underwriters' Laboratories UL 1449 and 1283.

**1.03 MANUFACTURER'S QUALIFICATIONS**

- A. Manufacturers shall be ISO9000 certified.  
B. Manufacturers shall have been engaged in the design and manufacturing of surge protection devices for at least ten (10) years.  
C. The following manufacturers will be approved, provided they meet all specifications:  
1. **ERICO Products Inc.** 34600 Solon Road, Solon OH 44139  
2. Equal products by Leviton, Innovations Technology, APT, and Wiremold Sentrex.

**1.04 WARRANTY**

- A. The manufacturer shall provide a minimum of a five (5) year warranty from the date of shipment against failure when installed in compliance with national and local electrical codes; and per the manufacturer's installation, operation and maintenance manuals. Products with warranties that exclude temporary over voltage conditions, abnormally high number of surges, direct or indirect lightning strikes shall not be used.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. The Surge Protection Device shall be listed to UL 1449 Edition 3 as a SPD Type 1 or SPD Type 2 Product.  
B. The UL 1449 Edition 3 Nominal Discharge Current (In) for the Surge Protection Device shall be 20 kA. A Surge Protection Device with a UL 1449 Edition 3 Nominal Discharge Current listing of 3 kA, 5 kA, or 10 kA will not be accepted.  
C. MCOV shall be greater than 115% of the nominal operating voltage.  
D. The Surge Protection Device shall have a stand-off voltage rating twice the nominal voltage. The Surge Protection Device shall be able to withstand Temporary Over Voltage Conditions twice the nominal voltage for an indefinite period of time, without damage, removing components from the circuit, or interrupting panel.  
E. The Surge Protection Device shall protect all modes via L-N, L-G and N-G modes of protection. For Delta power systems L-L and L-G protection modes shall be provided, with the ability to configure L-G to L-L for ungrounded systems.  
F. Independent certification shall be provided proving that the Surge Protection Device meets the required 8/20 $\mu$ s per phase single shot surge rating, without failure of any fusing,

disconnects or surge module. Bypassing of any fusing/disconnects for purpose of this test is not acceptable.

- G. Each mode of the Surge Protection Device shall be rated to exceed the life cycle testing of ANSI/IEEE C62.45 by withstand of at least 200 operations at 10kA 8/20µs and at least 100 operation at 20 kA without failure.
- H. The Surge Protection Device shall have a Short Circuit Current Rating (SCCR) of 200 kAIC, per UL 1449 Edition 3.
- I. The Surge Protection Device shall be capable of withstanding multiple temporary over-voltage per UL 1449 Ed 2 Section 36 "Overvoltage Test", & 37 "Abnormal Overvoltage Tests" without failure or need to reset or replace modules/fuses.
- J. Each MOV shall be protected with individual thermal disconnect devices bonded directly to the MOV substrate for rapid and automatic disconnection of any MOV exhibiting excessive temperature. The following are not acceptable:
  - 1. Surge Protection Devices without thermal fuses/disconnects.
  - 2. Surge Protection Devices with shared thermal devices that disconnect more than one MOV.
- K. For safety, the Surge Protection Device shall have a maximum continuous operating voltage (MCOV) of at least:

Power System	MCOV (L-N)
Single phase (2W+G) 220-240V	310V
Three phase (4W+G) 120/208 WYE	170V
Three phase (4W+G) 277/480 WYE	310V

- L. Enclosure shall:
  - 1. Feature all metal NEMA 4 enclosure suitable for outdoor usage.
  - 2. The Surge Protection Device depth shall be less than 3.5" to allow mounting within wall cavity with optional flush mount kit.
  - 3. The Surge Protection Device width shall be less than 5" to enable installation between adjacent electrical enclosures.

**2.02 Main Service Panels**

Surge Protection Devices shall be installed at all AC service entrances of each building.

- A. The Surge Protection Device shall incorporate 200kA 8/20µs MOV protection per phase.
- B. The TVSS shall have the following status indications:
  - 1. Each individual mode of protection shall be separately monitored and displayed via a mechanical flag status indication for each mode.
  - 2. A LED status indication per phase.
  - 3. An overall status LED
  - 4. Form-C alarm contacts for remote alarming of faults
  - 5. Audible Alarm.
  - 6. A five (5) digit surge counter that cannot be reset.
- C. The Surge Protection Device shall have a built-in disconnect that allows fusing and surge components to be removed without interrupting power, or disconnecting hard wire connections.
- D. The following Voltage Protection Ratings (VPR) shall not be exceeded by the Surge Protection Device.

	Voltage Protection Rating	
	Impulse standard (no AC applied)	120/240 V 120/208 V
ANSI/IEEE C62.41 Cat B3 3kA	600V	1000V
ANSI/UL 1449 Edition 3 20 kA Nominal Discharge Current Testing	1200V	1800V

E. At least -40dB @100 kHz EMI/RFI shall be provided L-N (L-L for Delta units). To avoid unsafe ground leakage current, no filtering shall connect to ground.

F. ERICO, CRITEC TDX200 Modular Series or similar meeting these specifications.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install Surge Protection Devices in full accordance with manufacturer's written instructions and comply with all applicable codes.
- B. Surge Protection Devices with a UL 1449 Edition 3, Listing as a SPD Type 2 shall have a 30-amp circuit breaker or other size as recommended by the manufacturer's installation manuals. This independent circuit breaker will serve as a means of a disconnect for servicing the Surge Protection Device with the protected panel remaining energized.
- C. Surge Protection Devices with a UL 1449 Edition 3 Listing as a SPD Type 1, and an integrated disconnect can be connected directly to the buss without a designated circuit breaker.
- D. The Surge Protection Device shall be installed with the shortest possible leads, or conductor length, minimum No. 8 AWG.

**END OF SECTION**

**SECTION 26 56 68**

**EXTERIOR ATHLETIC LIGHTING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. All existing poles, fixtures and cross arms removed as a part of the demo process will be stored on vacant lot adjacent to the site.
- C. The purpose of these specifications is to define the lighting system performance and design standards for Oak Ridge High School using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- D. The sports lighting will be for the following venues:
  - 1. Track
- D. The primary goals of this sports lighting project are:
  - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
  - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.
  - 3. **Cost of Ownership:** In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
  - 4. **Control and Monitoring:** To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
- E. All lighting designs shall comply with Oak Ridge, TN.

**1.02 LIGHTING PERFORMANCE**

- A. **Illumination Levels and Design Factors:** Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

<b>Area of Lighting</b>	<b>Average Target Illumination Levels</b>	<b>Maximum to Minimum Uniformity Ratio</b>	<b>Grid Points</b>	<b>Grid Spacing</b>
Track	30 Footcandles	5:1	48	30' x 30'

- B. **Color:** The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.



- C. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be as described below. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
6	T1-T6	60'

**1.03 ENVIRONMENTAL LIGHT CONTROL**

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- B. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer’s laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

**1.04 COST OF OWNERSHIP**

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

**PART 2 PRODUCT**

**2.01 SPORTS LIGHTING SYSTEM CONSTRUCTION**

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
  - 1. Galvanized steel poles and cross-arm assembly.
  - 2. Non-approved pole technology:
    - a. Square static cast concrete poles will not be accepted.
    - b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
  - 3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
    - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of

- 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
- b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
4. Manufacturer will supply all drivers and supporting electrical equipment
    - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2\_2002.
  5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
  6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
  7. Control cabinet to provide remote on-off control and monitoring features of the lighting system. See Section 2.3 for further details.
  8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    - a. Integrated grounding via concrete encased electrode grounding system.
    - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
- D. Safety: All system components shall be UL listed for the appropriate application.

## **2.02 ELECTRICAL**

- A. Electric Power Requirements for the Sports Lighting Equipment:
  1. Electric power: 480 Volt, 1 Phase
  2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kW consumption for the field lighting system shall be 28.60.

## **2.03 CONTROL**

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
- C. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, fax, email)

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

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

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

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

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

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

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

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

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

## **2.04 STRUCTURAL PARAMETERS**

- A. Wind Loads: Wind loads shall be based on the 2012 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115 and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).
- C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report. If no geotechnical report is available, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2015 IBC Table 1806.2.

## **PART 3 EXECUTION**

### **3.01 SOIL QUALITY CONTROL**

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
  1. Providing engineered foundation embedment design by a registered engineer in the State of Tennessee for soils other than specified soil conditions;
  2. Additional materials required to achieve alternate foundation;
  3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

### **3.02 DELIVERY TIMING**

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 6-8 weeks from receipt of approved submittals and receipt of complete order information.

### **3.03 FIELD QUALITY CONTROL**

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.
- B. Field Light Level Accountability
  - 1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
  - 2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
  - 3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.
- C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

### **3.04 WARRANTY AND GUARANTEE**

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
- B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

## **PART 4 DESIGN APPROVAL**

### **4.01 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)**

- A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.
- B. Approved Product: Musco's Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

- C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.
- D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

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

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

Yes/No	Tab	Item	Description
	<b>A</b>	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	<b>B</b>	Equipment Layout	Drawing(s) showing field layouts with pole locations
	<b>C</b>	On Field Lighting Design	Lighting design drawing(s) showing: <ul style="list-style-type: none"> <li>a. Field Name, date, file number, prepared by</li> <li>b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x &amp; y), Illuminance levels at grid spacing specified</li> <li>c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics</li> <li>d. Height of light test meter above field surface.</li> <li>e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor.</li> </ul>
	<b>D</b>	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	<b>E</b>	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	<b>F</b>	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	<b>G</b>	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Tennessee, if required by owner.
	<b>H</b>	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide <del>ten</del> (10) references of customers currently using proposed system in the state of Tennessee.
	<b>I</b>	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Tennessee.

<b>J</b>	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Tennessee.
<b>K</b>	Project References	Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of Tennessee. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
<b>L</b>	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
<b>M</b>	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
<b>N</b>	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
<b>O</b>	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years

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

**Manufacturer:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

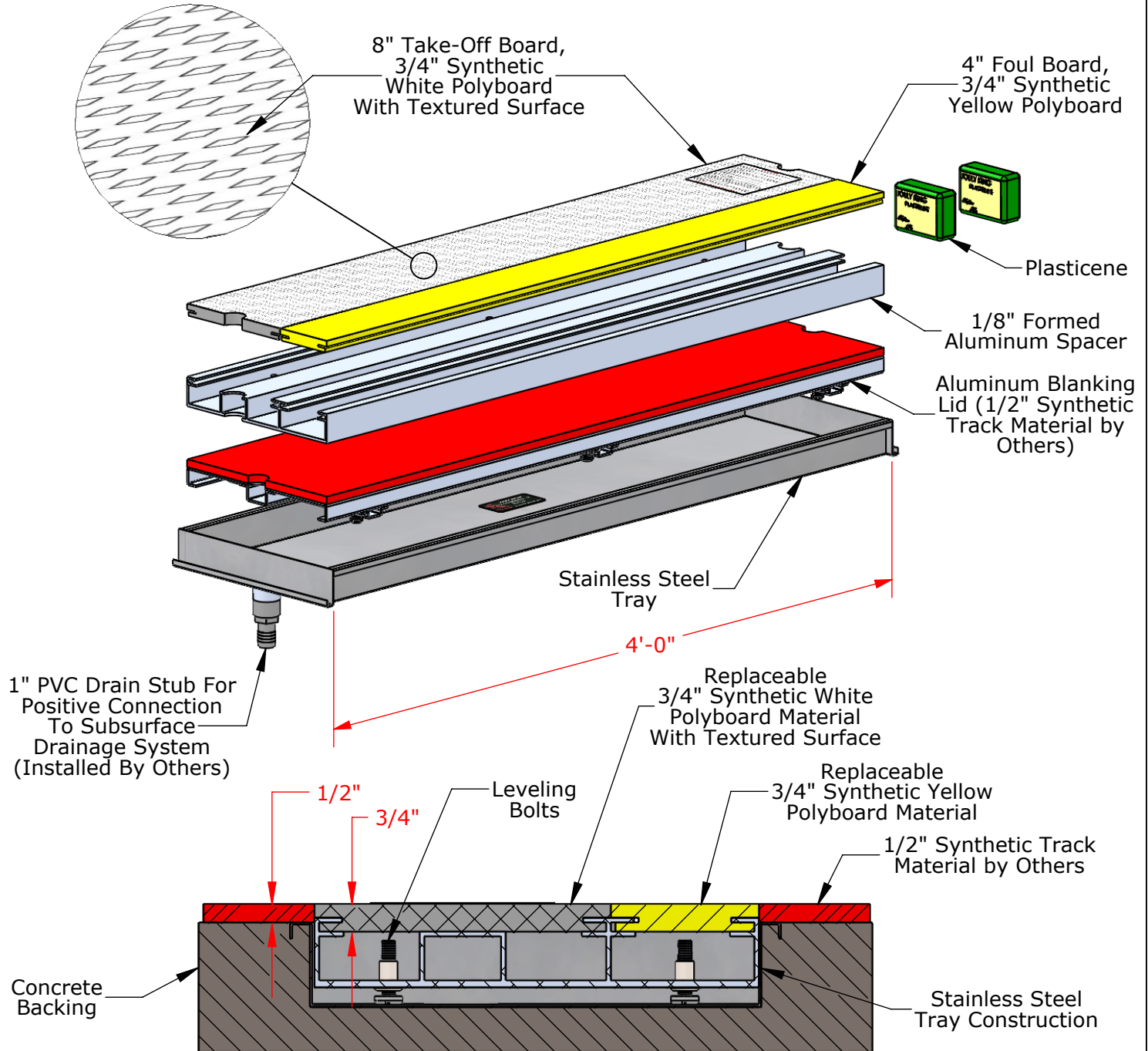
**Contractor:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**END OF SECTION**

APPENDIX A

PAGE #	PRODUCT DESCRIPTION
2	<b><u>LONG/TRIPLE JUMP</u></b> - LTJTOB12 (TFLTP012SS-SYN) 12" LONG/TRIPLE JUMP POLYBOARD TAKE-OFF BOARD SYSTEM WITH REPLACEMENT BLANKING LID
3	<b><u>LONG/TRIPLE JUMP SAND PIT</u></b> – SPSCHS (SP6020) JUMPFORM HIGH SCHOOL 3M X 7M SAND PIT WITH SAND CATCHERS
4	<b><u>STEEPLECHASE LANE</u></b> – SCWJFS50 STEEPLECHASE WATER JUMP PIT FORMING SYSTEM – ELEVATION VIEW
5	<b><u>STEEPLECHASE LANE</u></b> – SCWJFS50 STEEPLECHASE WATER JUMP PIT FORMING SYSTEM – PLAN VIEW
6	<b><u>STEEPLECHASE LANE</u></b> – SCWJFS50 STEEPLECHASE WATER JUMP PIT FORMING SYSTEM – REAR WALL AND DRAIN VALVE VIEW
7	<b><u>STEEPLECHASE LANE</u></b> – SCWJCVR (WJ5400) STEEPLECHASE WATER JUMP PIT FORMING SYSTEM COVER SET
8	<b><u>STEEPLECHASE LANE</u></b> – SCWJH (WJ5020) ADJUSTABLE STEEPLECHASE HURDLE
9	<b><u>POLE VAULT BOX</u></b> – PVBSS (TFPV002SS) – STAINLESS STEEL VAULT BOX
10	<b><u>POLE VAULT BOX</u></b> – PVBSS (TFPV002SS) – STAINLESS STEEL VAULT BOX PLAN AND SIDE VIEWS
11	<b><u>POLE VAULT BOX</u></b> – PVBCPSS (TFPV003ALTR-SS) – ALUMINUM VAULT BOX PLUG
12	<b><u>SHOT PUT/HAMMER THROW</u></b> – TRSPHAW (TFSWRING) SHOT PUT/HAMMER WEB REINFORCED THROW RING
13	<b><u>SHOT PUT/HAMMER THROW</u></b> – SPTBCARHS (TFSPT00IAL) – HIGH SCHOOL SHOT PUT TOE BOARD RECESSED CONCRETE PAD INSTALLATION
14	<b><u>DISCUS</u></b> – TRDAW (TFDWRING) DISCUS WEB REINFORCED THROW RING
15	<b><u>DISCUS</u></b> – HIGH SCHOOL DISCUS CAGE GROUND SLEEVE LAYOUT PLAN
16	<b><u>TRENCH DRAIN</u></b> – SYSTEM 4000 OPEN CHANNEL TRENCH DRAIN SYSTEM
17	<b><u>TRENCH DRAIN</u></b> – SYSTEM 4000 OPEN CHANNEL TRENCH DRAIN SYSTEM
18	<b><u>LANE GATE</u></b> – LGRTL (TFLG002AL) – LOCKING TRACK LANE GATE
19	<b><u>ATHLETIC SURFACE</u></b> – PLEXITRAC LIGHTNING RUNNING TRACK
20	<b><u>ATHLETIC SURFACE</u></b> – PLEXITRAC LIGHTNING RUNNING TRACK

United States Patent # 8,337,318, Issued December 25, 2012



**Important:**

This Board should ONLY be used with proper track spikes at all levels of practice and/or competition. If track spikes are NOT used, the track surface side of the insert or blanking lid should be facing up.

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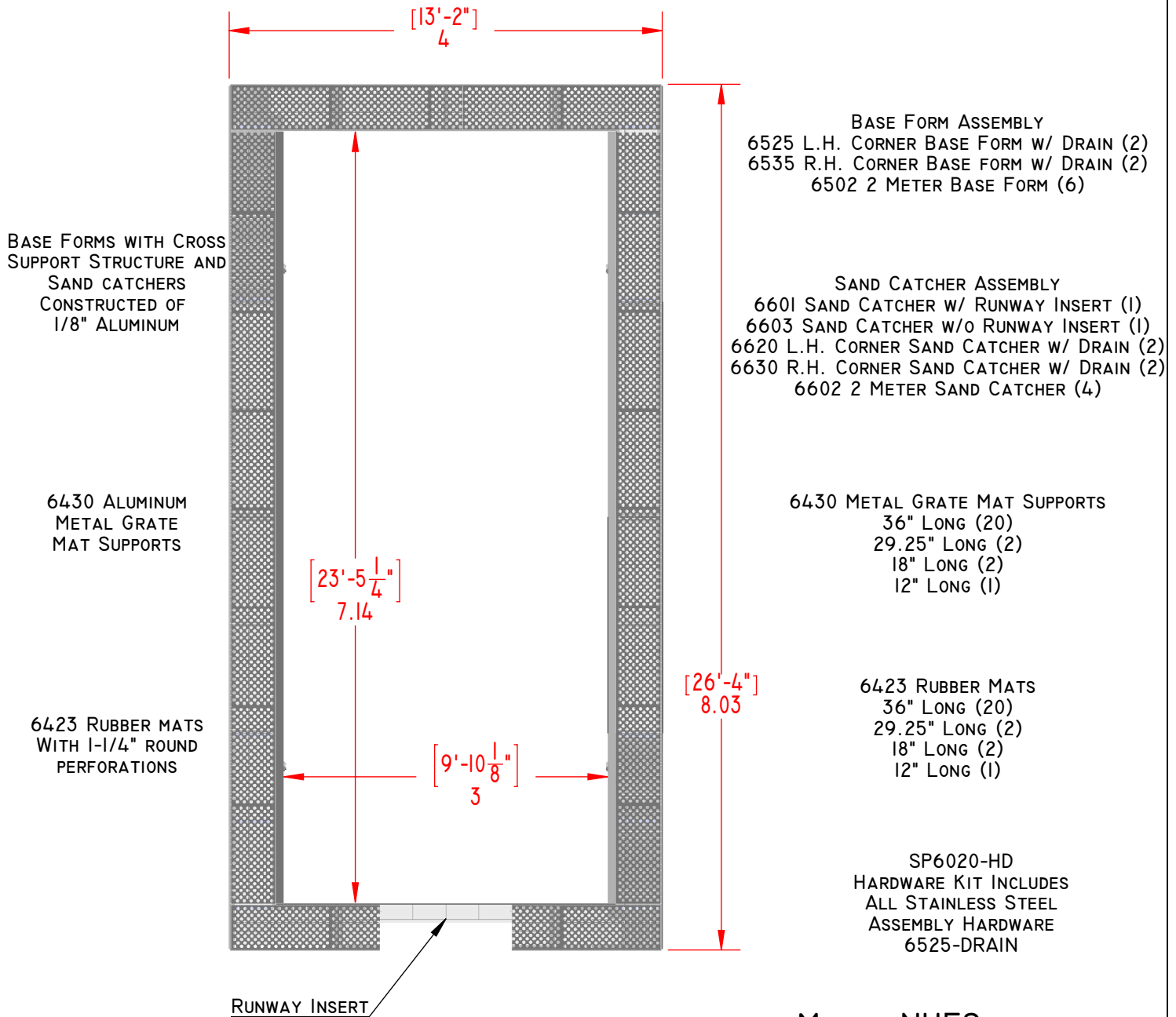
**LTJTOB12 (TFLTP012SS-SYN) 12" Long/Triple Jump Polyboard Take-Off Board System with Replacement Blanking Lid**

Not To Scale

Sportsfield Specialties Inc 03042020



UNITED STATES PATENT #7,641,593, ISSUED JANUARY 5, 2010  
 UNITED STATES PATENT #8,186,125, ISSUED MAY 29, 2012  
 UNITED STATES PATENT #8,745,955, ISSUED JUNE 10, 2014



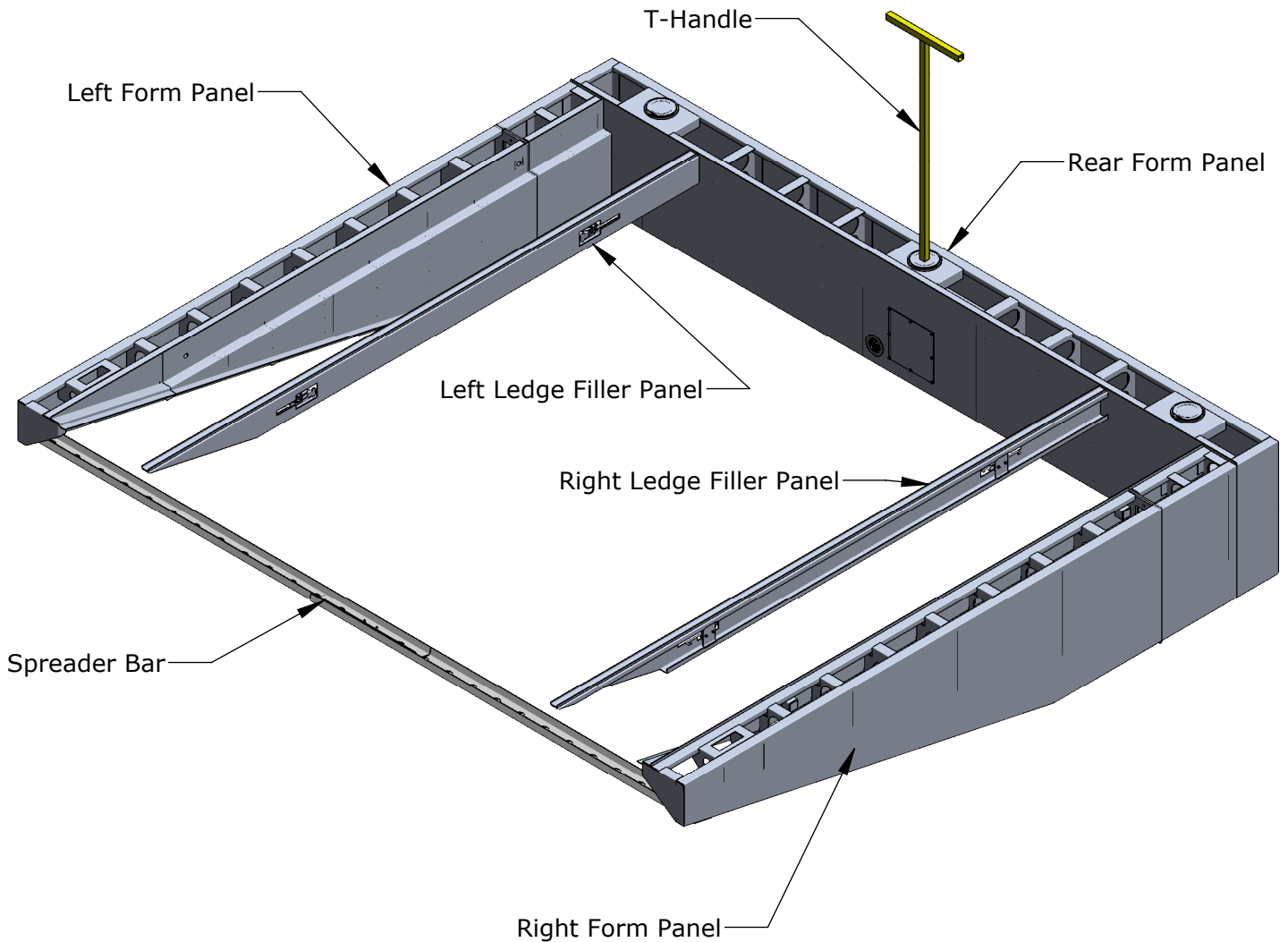
**MEETS NHFS  
 REQUIREMENTS AND SPECIFICATIONS**

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**SPSCHS (SP6020) JUMPFORM®  
 HIGH SCHOOL 3M x 7M SAND PIT WITH SAND CATCHERS**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC I2072016



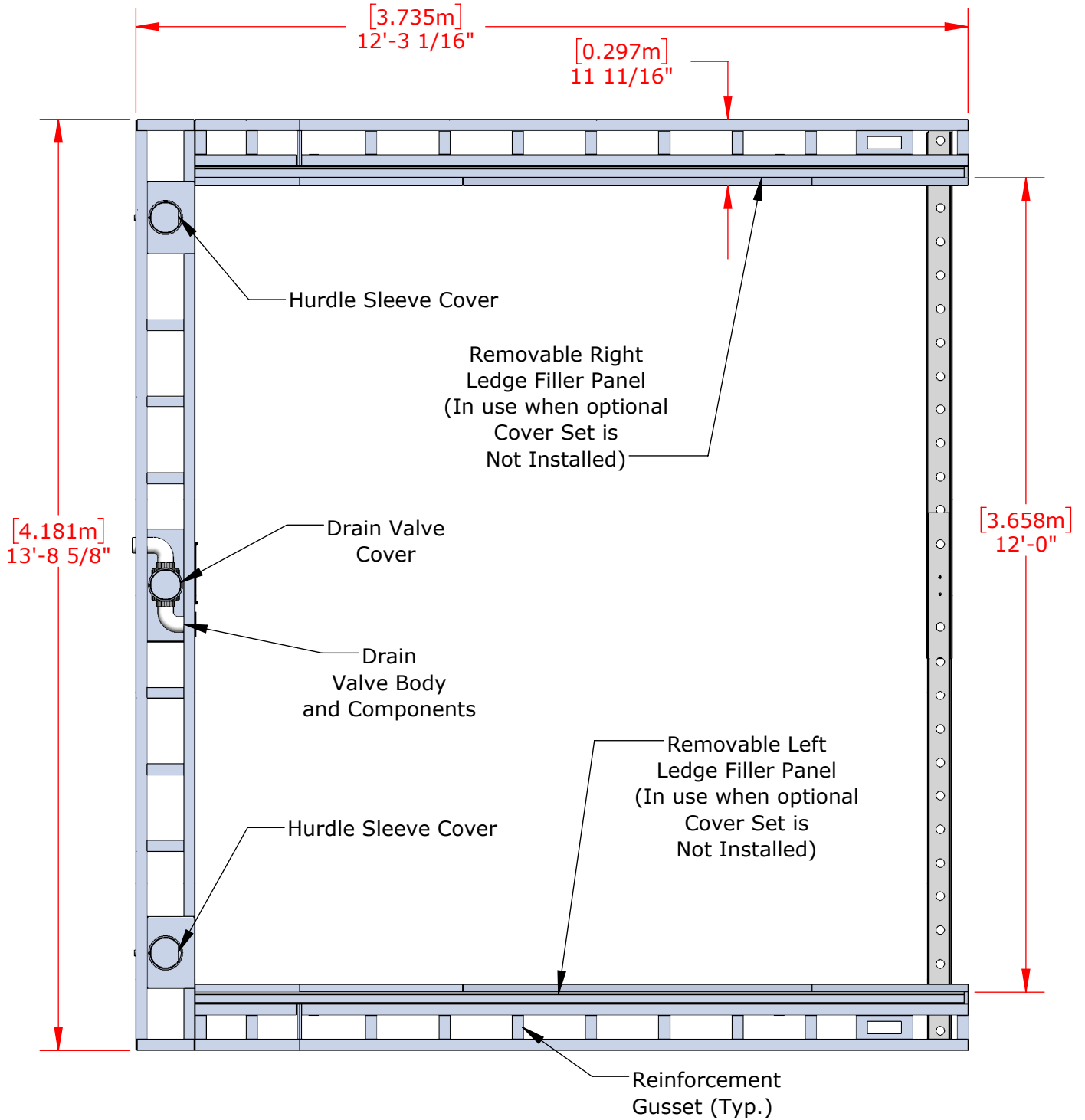
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**SCWJFS50 Steeplechase Water Jump Pit Forming System - Elevation View**

Not To Scale

Sportsfield Specialties Inc 11302020



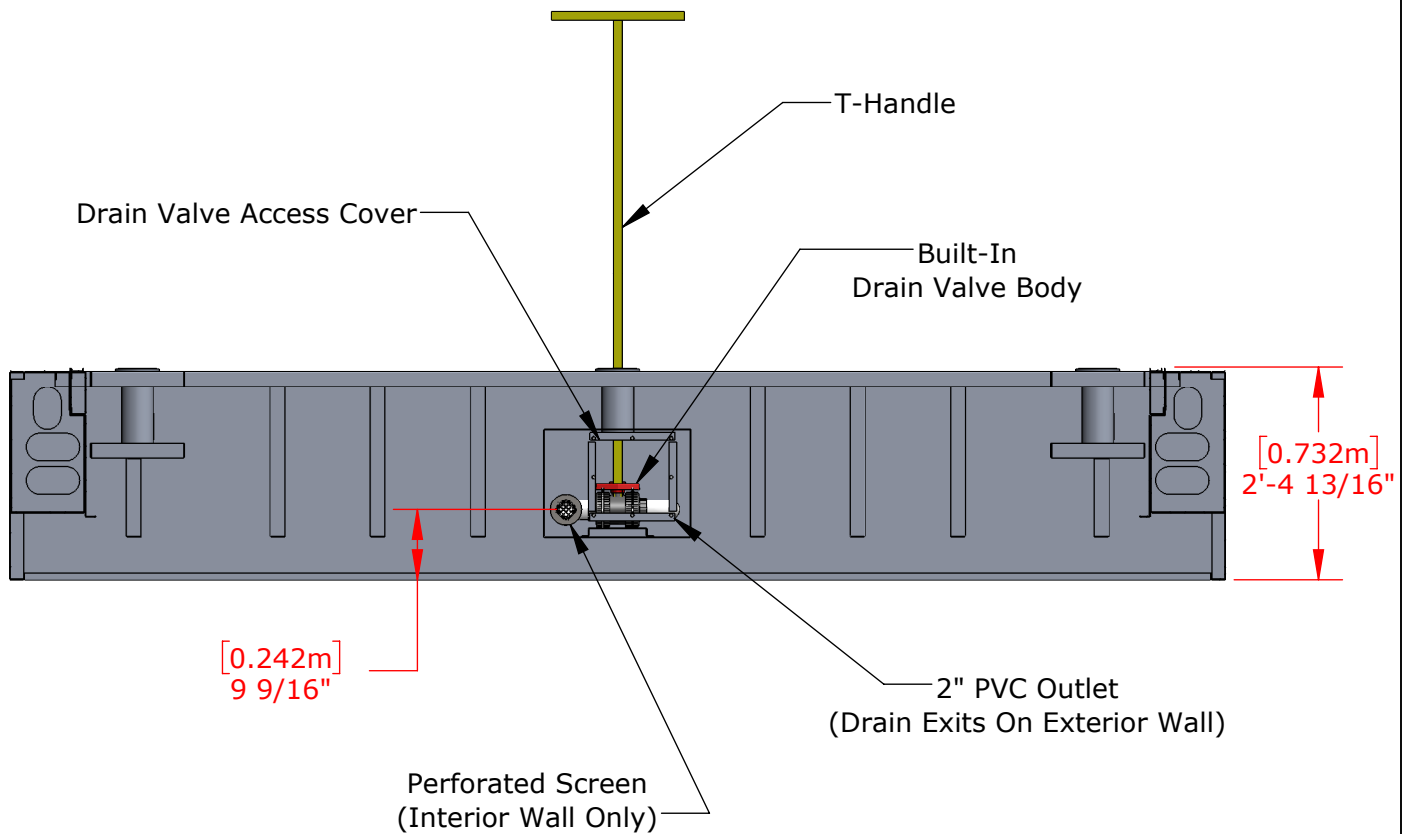
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**SCWJFS50 Steeplechase Water Jump Pit Forming System - Plan View**

Not To Scale

Sportsfield Specialties Inc 11302020



**PROPRIETARY AND CONFIDENTIAL**

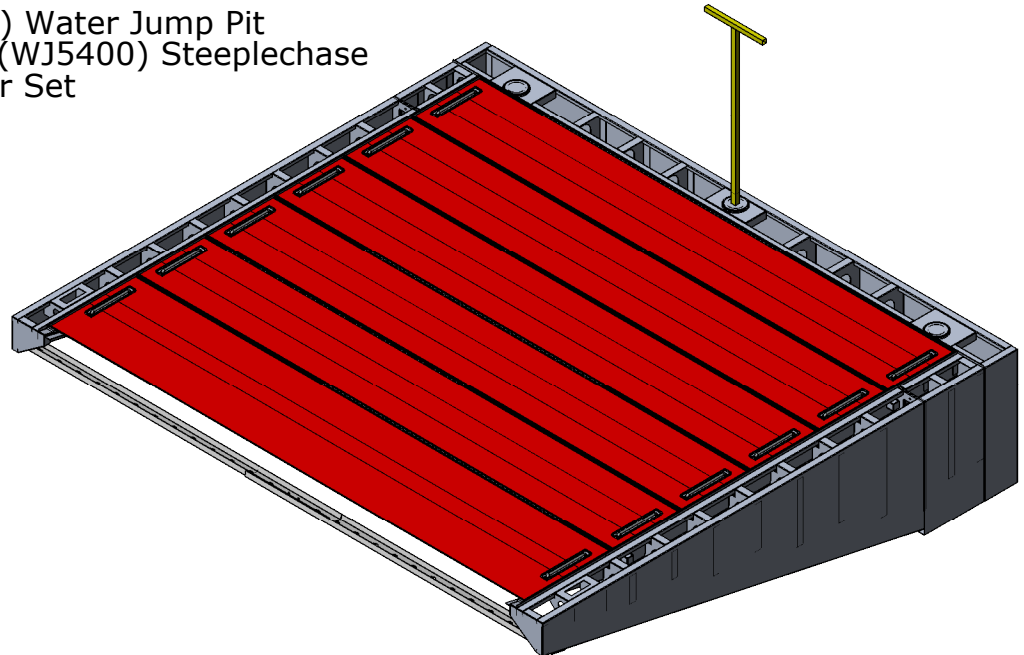
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**SCWJFS50 Steeplechase Water Jump Pit Forming System - Rear Wall and Drain Valve View**

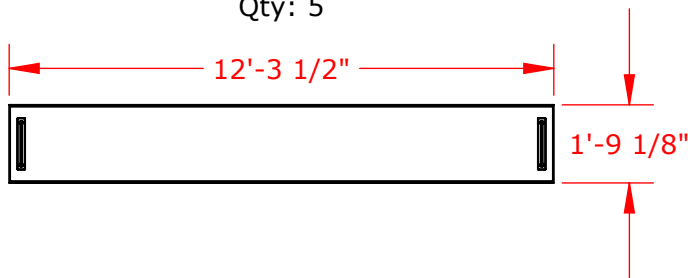
Not To Scale

Sportsfield Specialties Inc 11302020

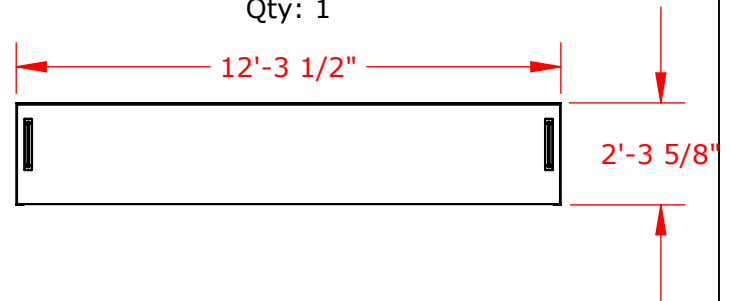
SCWJFS(WJ5000) Water Jump Pit  
 with optional SCWJCVR(WJ5400) Steeplechase  
 Cover Set



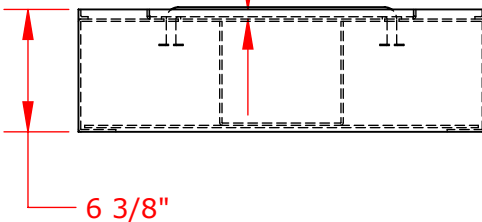
Straight Cover  
 Qty: 5



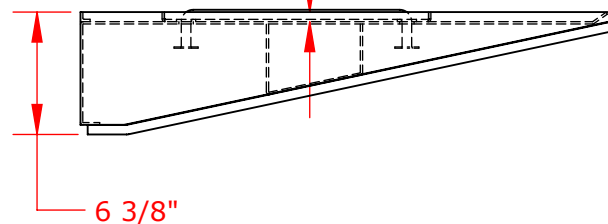
Wedge Cover  
 Qty: 1



1/2" Recess to Accept  
 Synthetic Track Surface  
 by Others



1/2" Recess to Accept  
 Synthetic Track Surface  
 by Others



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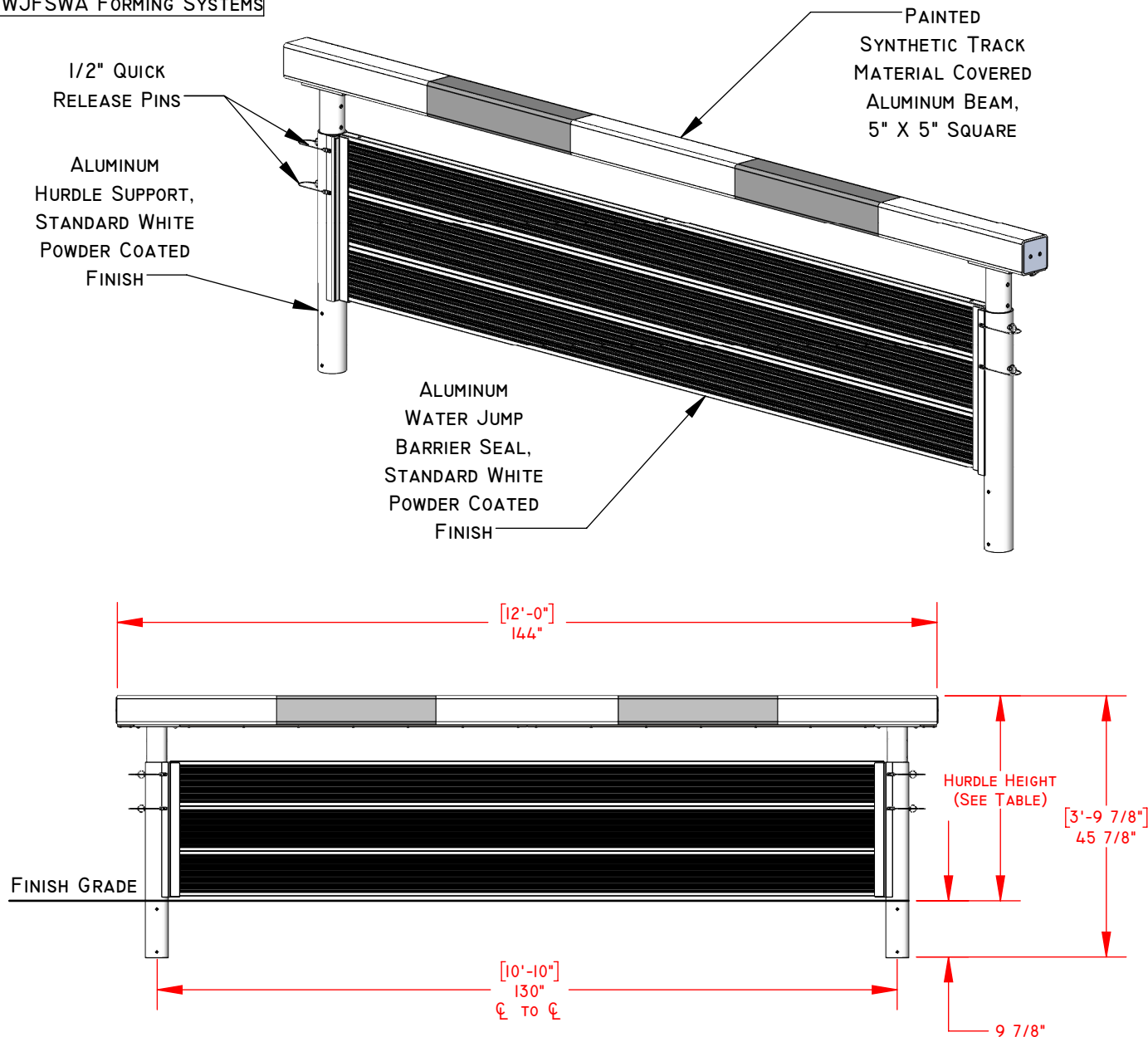
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**SCWJCVR (WJ5400) Steeplechase Water Jump Pit  
 Forming System Cover Set**

Not To Scale

Sportsfield Specialties Inc 01072020

NOTE: COMPATIBLE WITH SCWJFS  
AND SCWJFSWA FORMING SYSTEMS



HURDLE HEIGHT	COMPETITION LEVEL
36"	MEN'S COMPETITION
33"	WORLD ATHLETICS (IAAF) MEN'S UNDER 18 COMPETITION
30"	WOMEN'S COMPETITION

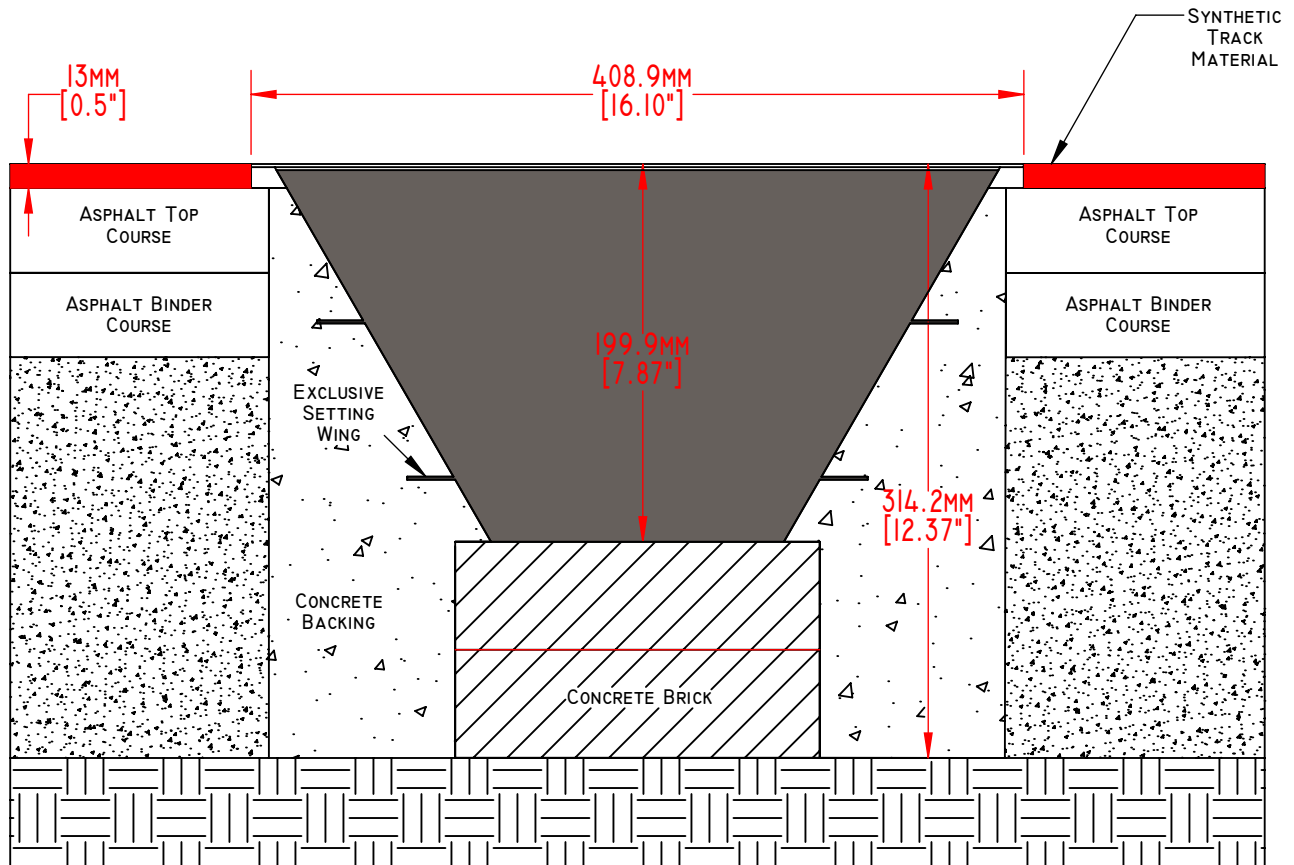
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**SCWJH (WJ5020) ADJUSTABLE STEEPLECHASE HURDLE**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC 04092020



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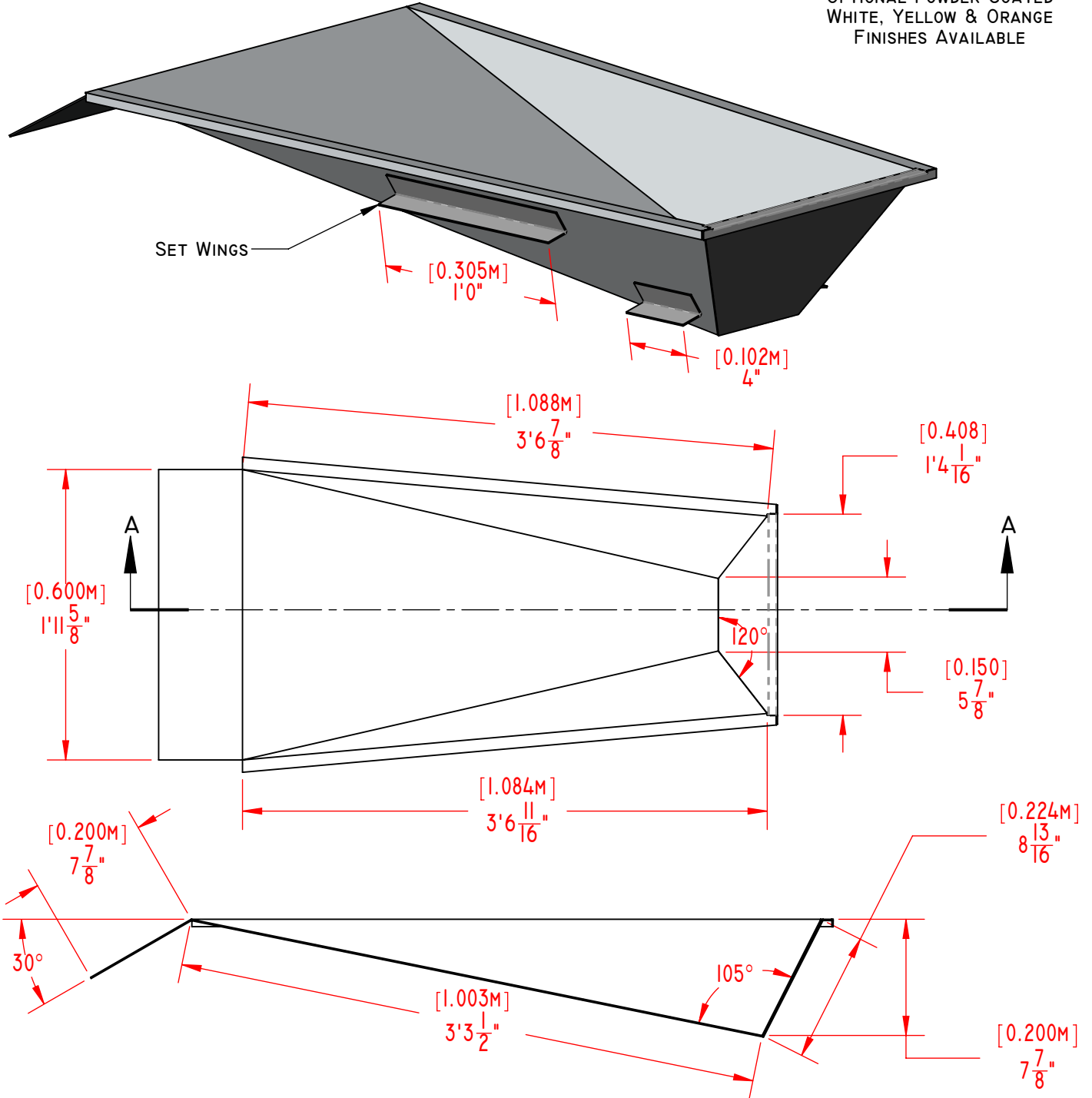
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**PVBSS (TFPV002SS) - STAINLESS STEEL VAULT BOX**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC I2052016

OPTIONAL POWDER COATED  
WHITE, YELLOW & ORANGE  
FINISHES AVAILABLE



MEETS AND/OR EXCEEDS ALL IAAF, NCAA AND NFHS SPECIFICATIONS

**PROPRIETARY AND CONFIDENTIAL**

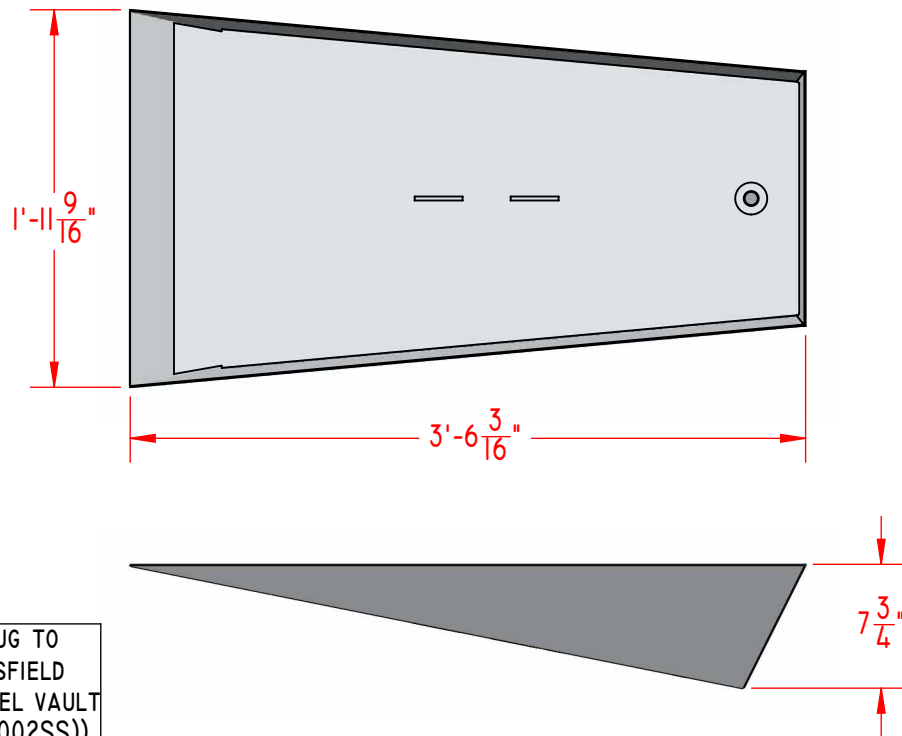
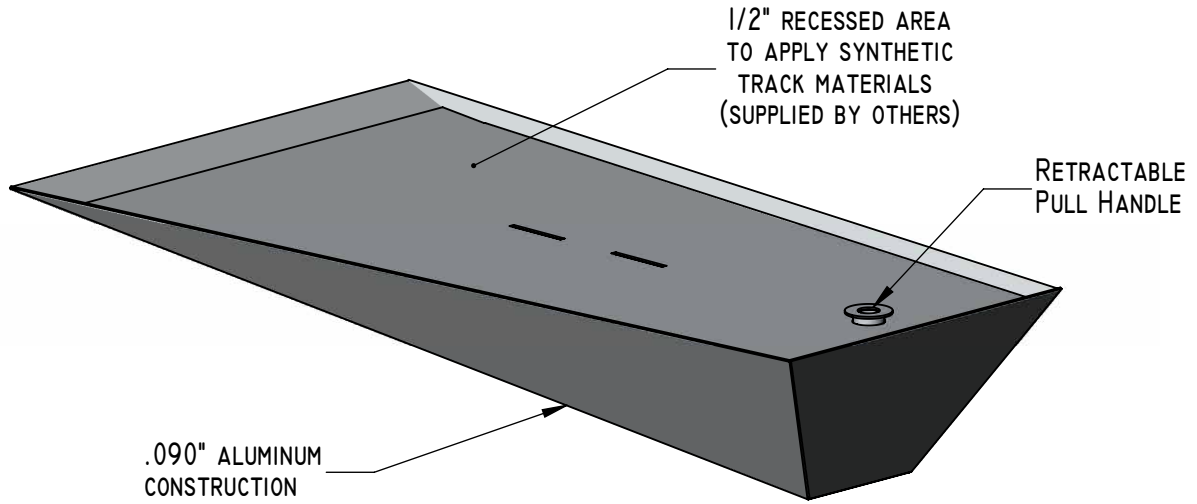
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**PVBSS (TFPV002SS) - STAINLESS STEEL VAULT BOX PLAN AND SIDE VIEWS**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC 12052016





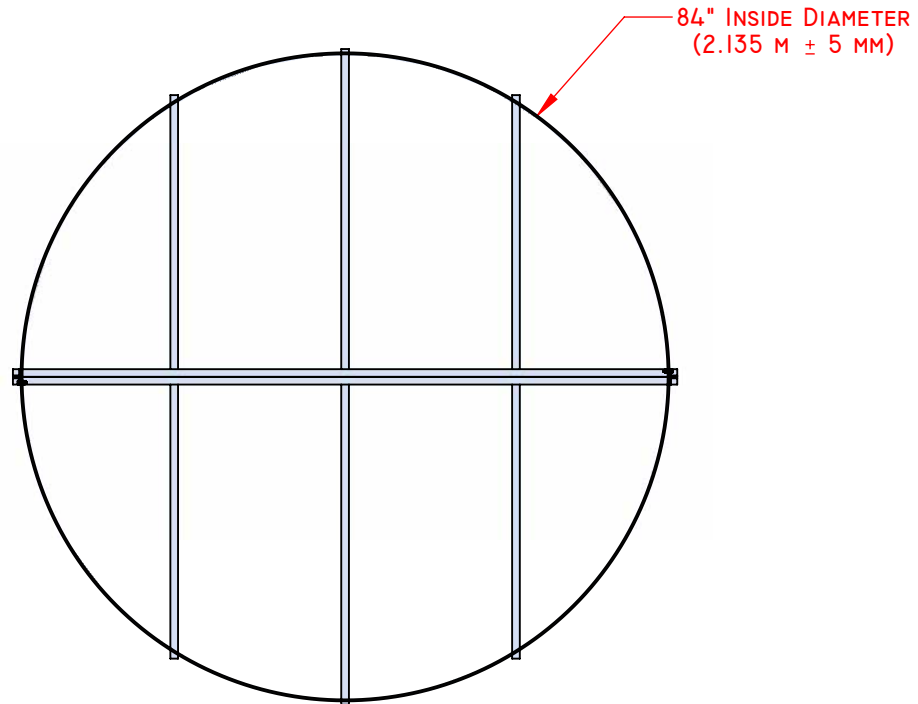
ALUMINUM VAULT BOX PLUG TO SPECIFICALLY FIT SPORTSFIELD SPECIALTIES STAINLESS STEEL VAULT BOX (PART# PVBSS(TFPV002SS))

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**PVBCPSS (TFPV003ALTR-SS) - ALUMINUM VAULT BOX PLUG**

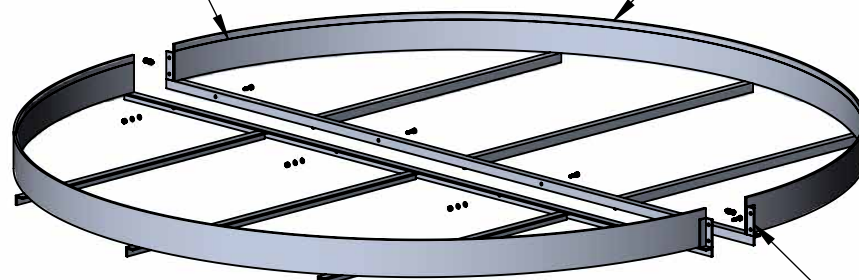
NOT TO SCALE

SPORTSFIELD SPECIALTIES INC 12052016



3/4" (0.75") DEPRESSED  
 CONCRETE FINISHING SCREED LINE

1/4" x 4" ALUMINUM  
 ROLLED THROW RING



1" x 1" x 3/16" ALUMINUM  
 ANGLE SUPPORTS

BOLT TOGETHER  
 CONSTRUCTION  
 STAINLESS STEEL  
 HARDWARE INCLUDED

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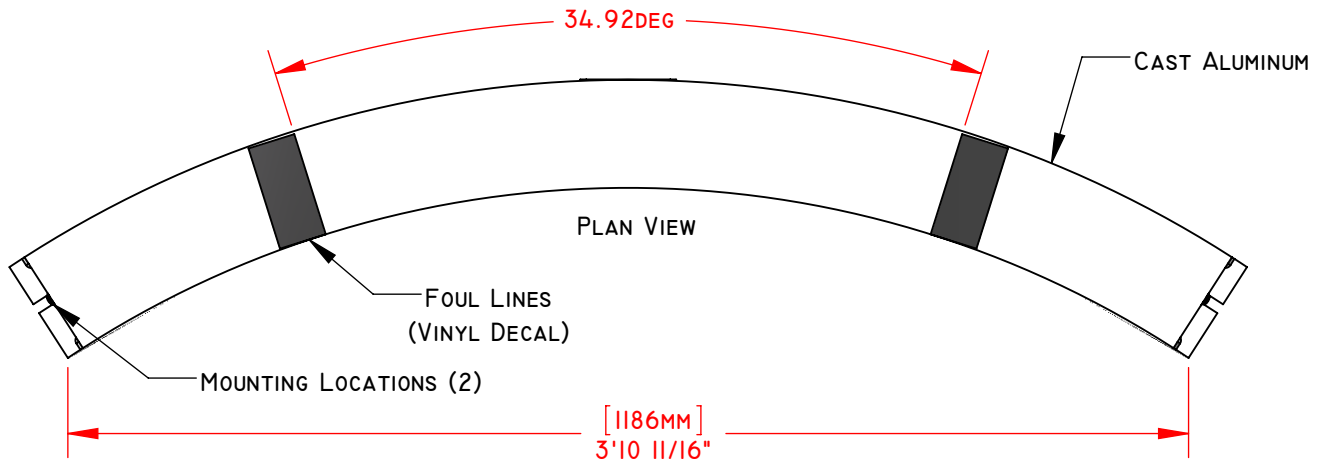
**TRSPHAW (TFSWRING)  
 SHOT PUT/HAMMER WEB REINFORCED THROW RING**

NOT TO SCALE

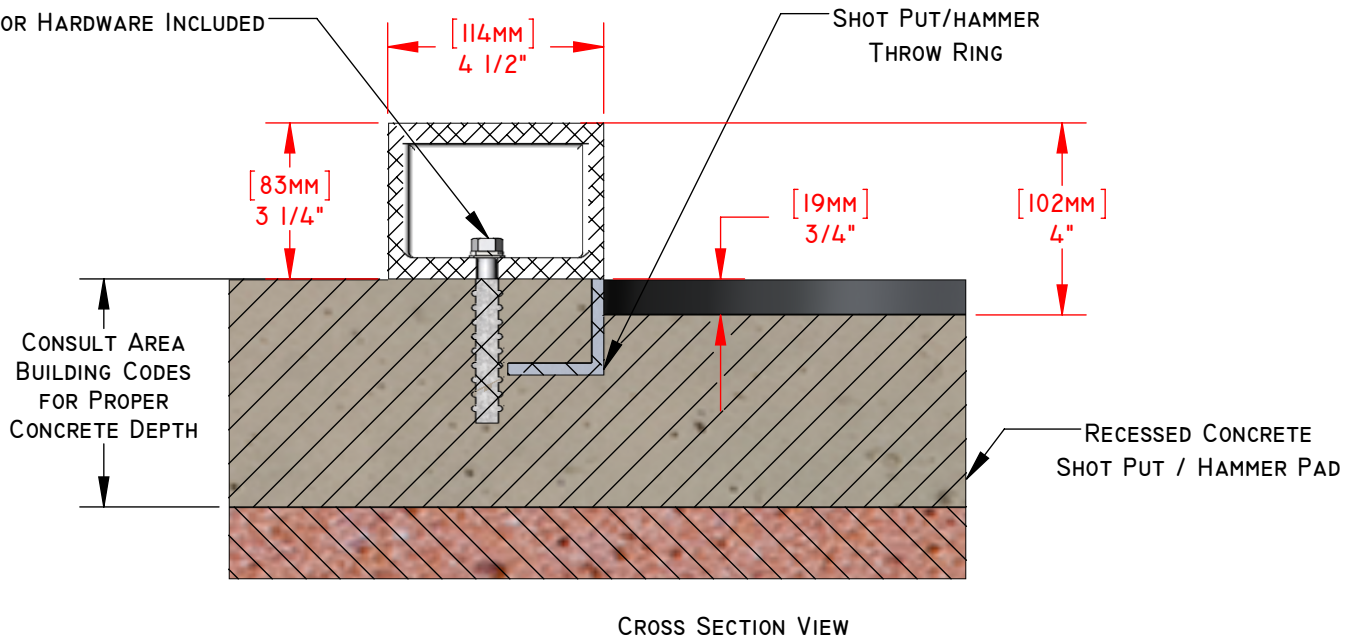
SPORTSFIELD SPECIALTIES INC 12052016

MEETS AND/OR EXCEEDS CURRENT NFHS SPECIFICATIONS, RULES AND REQUIREMENTS

POWDER COATED WHITE FINISH



3/8"-16 x 2"L HEX HEAD BOLT, FLAT WASHER, LOCK WASHER AND TWO-WAY EXPANSION ANCHOR HARDWARE INCLUDED

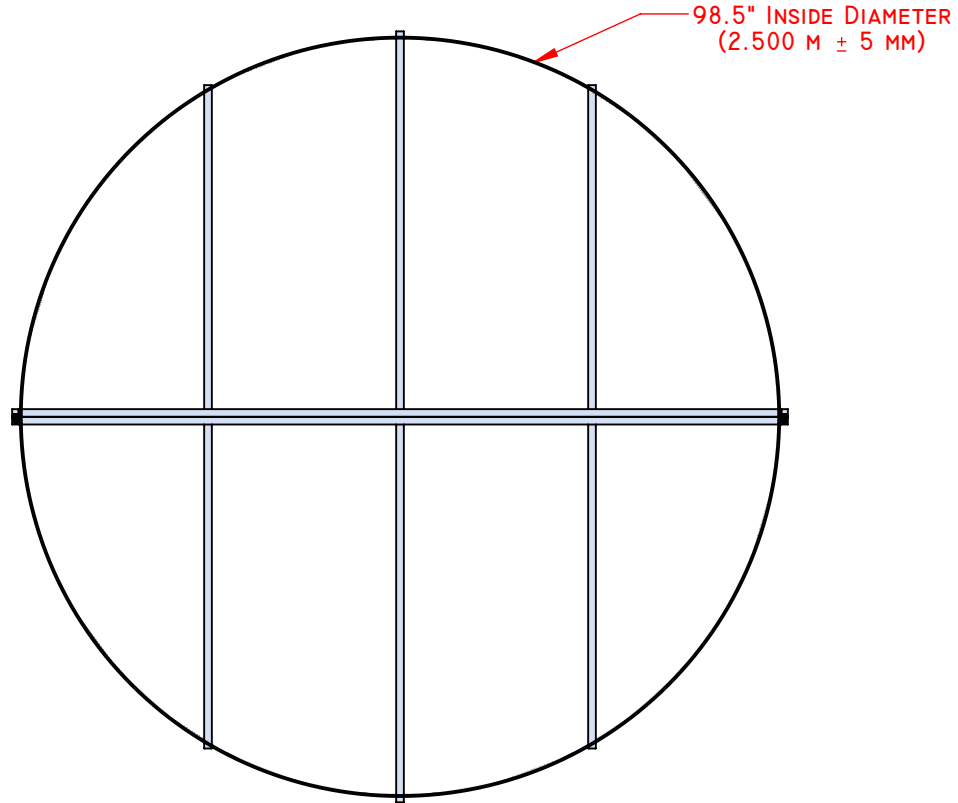


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**SPTBCARHS (TFSPT00IAL) - HIGH SCHOOL SHOT PUT TOE BOARD RECESSED CONCRETE PAD INSTALLATION**

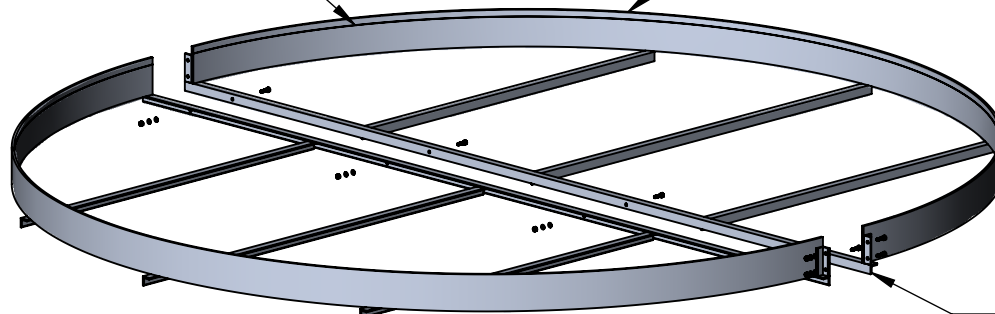
NOT TO SCALE

SPORTSFIELD SPECIALTIES INC 05162017



3/4" (0.75") DEPRESSED  
 CONCRETE FINISHING SCREED LINE

1/4" x 4" ALUMINUM  
 ROLLED THROW RING



1" x 1" x 3/16" ALUMINUM  
 ANGLE SUPPORTS

BOLT TOGETHER  
 CONSTRUCTION  
 STAINLESS STEEL  
 HARDWARE INCLUDED

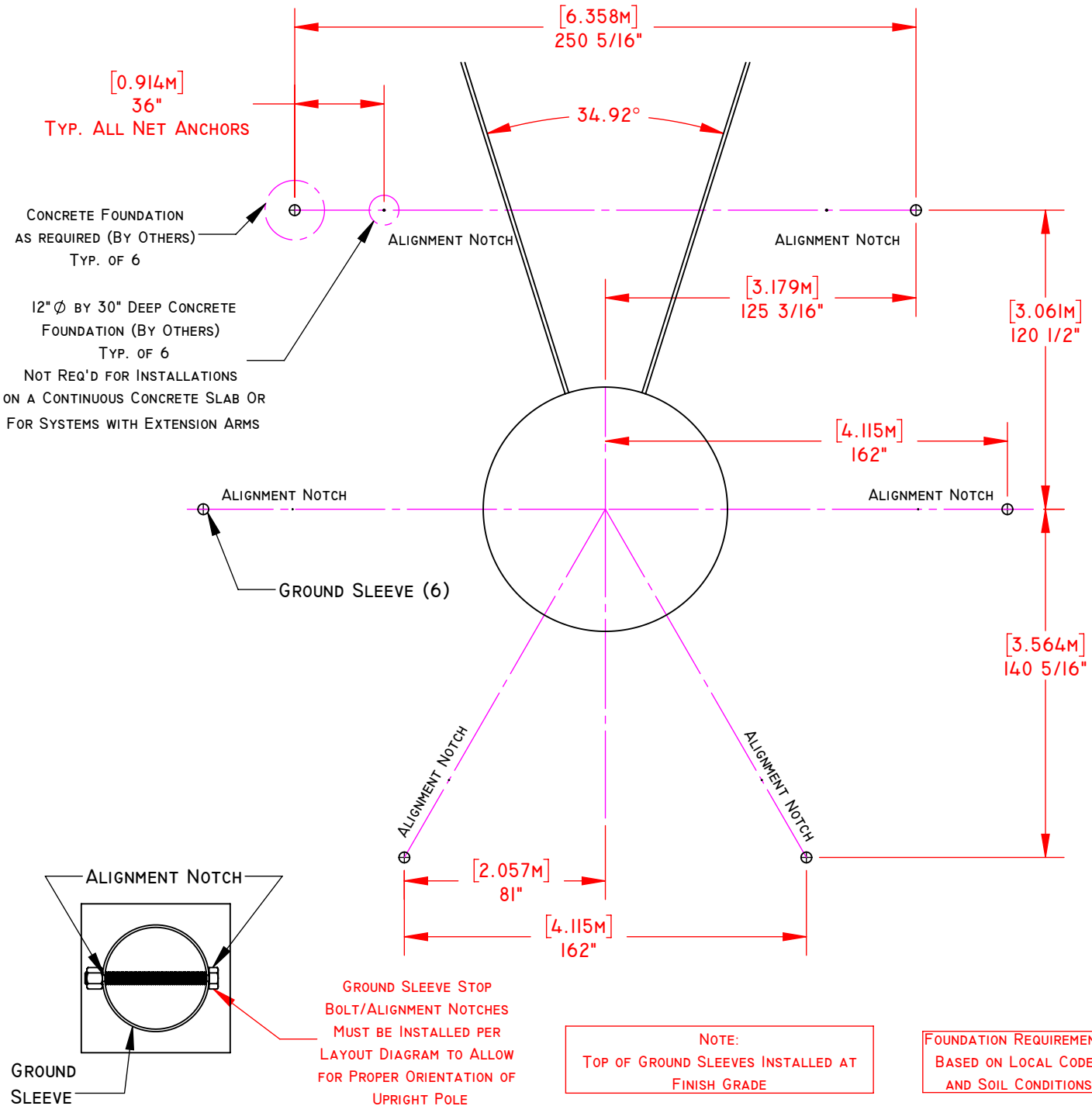
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**TRDAW (TFDWRING)  
 DISCUS WEB REINFORCED THROW RING**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC I2062016

MEETS AND/OR EXCEEDS CURRENT NFHS SPECIFICATIONS, RULES AND REQUIREMENTS



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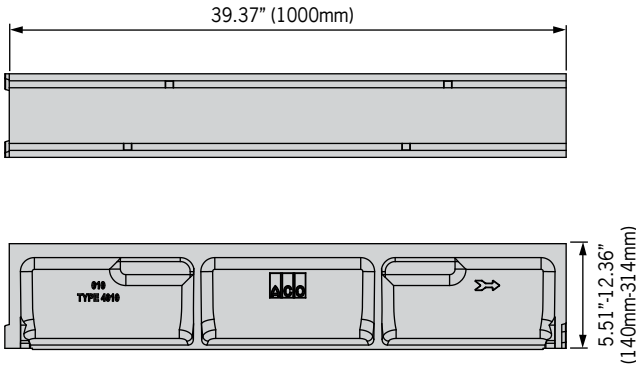
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## HIGH SCHOOL DISCUS CAGE GROUND SLEEVE LAYOUT PLAN

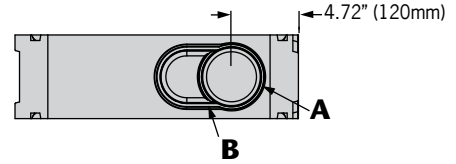
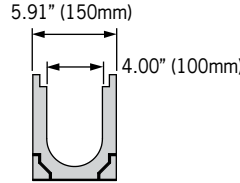
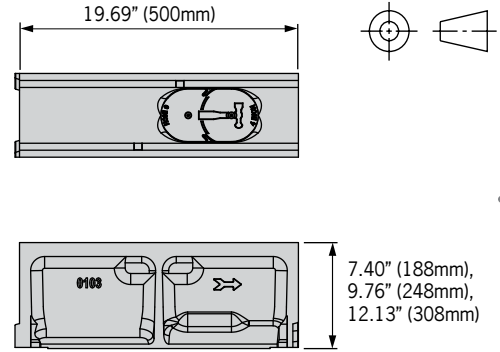
SPORTSFIELD SPECIALTIES INC 03252019

**System 4000 - Open channel trench drain system**

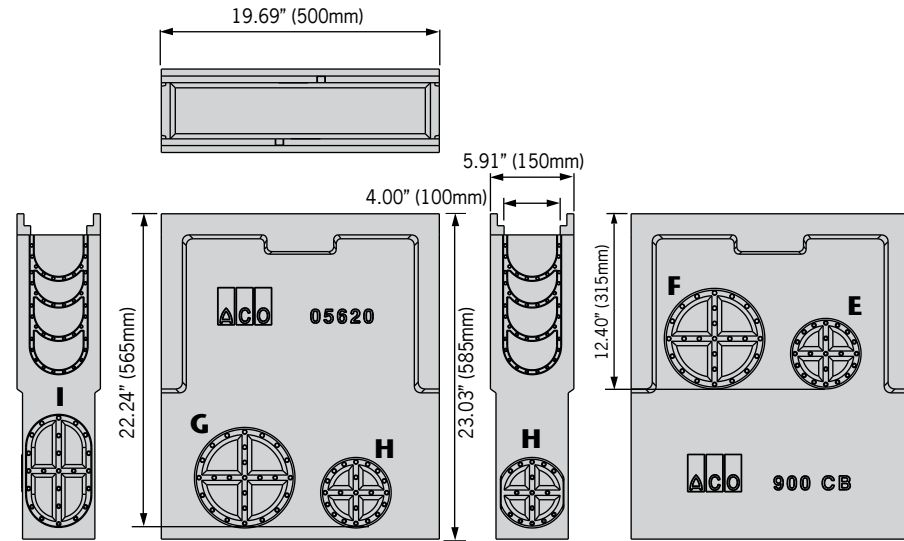
**One meter channel**



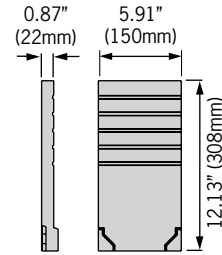
**Half meter channel**



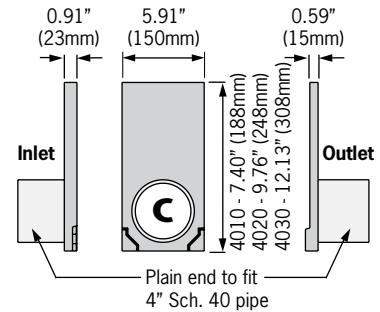
**In-line catch basin**



**Closing cap**



**4" Inlet/outlet caps**

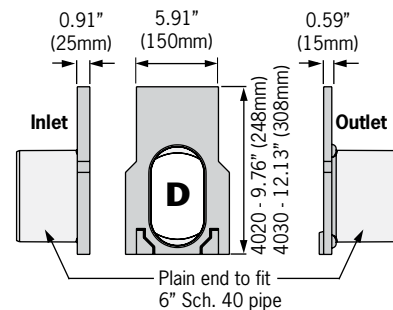


**Outlet flow rates**

Outlet	Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
A	Bottom outlet - 40103	4" round	6.50	117	0.26
A	Bottom outlet - 40303	4" round	11.22	185	0.41
B	Bottom outlet - 40103	6" oval	6.50	183	0.40
B	Bottom outlet - 40303	6" oval	11.22	288	0.64
C	Outlet cap - 4010	4" round	6.50	119	0.27
C	Outlet cap - 4030	4" round	11.22	168	0.39
D	Outlet cap - 4020	6" oval	8.86	220	0.50
D	Outlet cap - 4030	6" oval	11.22	248	0.57
E	In-line catch basin*	4" round	12.40	175	0.40
F	In-line catch basin*	6" round	12.40	379	0.87
G	In-line catch basin*	6" round	22.24	530	1.22
H	In-line catch basin*	4" round	22.24	242	0.54
I	In-line catch basin*	6" oval	22.24	372	0.86

\* In-line catch basin flow rate without trash bucket - using trash bucket reduces flow

**6" Oval Inlet/outlet caps**



ACO Specification Information



**ACO SPORT**

**System 4000 Open channel trench drain system**

Description	Part No	Invert Depth inches	Invert Depth mm	Overall Depth inches	Overall Depth mm	Wgt lbs
4000-1 Sloped channel - 39.37" (1meter)	138001	4.61	117	5.51	140	32.0
<b>4002 Constant depth channel - 39.37" (1meter)</b>	<b>06562</b>	<b>4.61</b>	<b>117</b>	<b>5.51</b>	<b>140</b>	<b>32.9</b>
4000-2 Sloped channel - 39.37" (1meter)	138002	4.84	123	5.75	146	32.9
4000-3 Sloped channel - 39.37" (1meter)	138003	5.08	129	5.98	152	33.8
4000-4 Sloped channel - 39.37" (1meter)	138004	5.31	135	6.22	158	34.7
4000-5 Sloped channel - 39.37" (1meter)	138005	5.55	141	6.46	164	35.6
4000-6 Sloped channel - 39.37" (1meter)	138006	5.79	147	6.69	170	36.5
4000-7 Sloped channel - 39.37" (1meter)	138007	6.02	153	6.93	176	37.4
4000-8 Sloped channel - 39.37" (1meter)	138008	6.26	159	7.17	182	38.3
4000-9 Sloped channel - 39.37" (1meter)	138009	6.50	165	7.40	188	39.2
<b>4010 Constant depth channel - 39.37" (1meter)</b>	<b>06561</b>	<b>6.50</b>	<b>165</b>	<b>7.40</b>	<b>188</b>	<b>40.1</b>
<b>40103 Constant depth channel - 19.69" (0.5meter)</b>	<b>138033</b>	<b>6.50</b>	<b>165</b>	<b>7.40</b>	<b>188</b>	<b>23.0</b>
4000-10 Sloped channel - 39.37" (1meter)	138010	6.73	171	7.64	194	40.1
4000-11 Sloped channel - 39.37" (1meter)	138011	6.97	177	7.87	200	41.0
4000-12 Sloped channel - 39.37" (1meter)	138012	7.20	183	8.11	206	41.9
4000-13 Sloped channel - 39.37" (1meter)	138013	7.44	189	8.35	212	42.8
4000-14 Sloped channel - 39.37" (1meter)	138014	7.68	195	8.58	218	43.7
4000-15 Sloped channel - 39.37" (1meter)	138015	7.91	201	8.82	224	44.6
4000-16 Sloped channel - 39.37" (1meter)	138016	8.15	207	9.06	230	45.5
4000-17 Sloped channel - 39.37" (1meter)	138017	8.39	213	9.29	236	46.4
4000-18 Sloped channel - 39.37" (1meter)	138018	8.62	219	9.53	242	47.3
4000-19 Sloped channel - 39.37" (1meter)	138019	8.86	225	9.76	248	48.2
<b>4020 Constant depth channel - 39.37" (1meter)</b>	<b>06563</b>	<b>8.86</b>	<b>225</b>	<b>9.76</b>	<b>248</b>	<b>49.1</b>
<b>40203 Constant depth channel - 19.69" (0.5meter)</b>	<b>138035</b>	<b>8.86</b>	<b>225</b>	<b>9.76</b>	<b>248</b>	<b>26.0</b>
4000-20 Sloped channel - 39.37" (1meter)	138020	9.09	231	10.00	254	49.1
4000-21 Sloped channel - 39.37" (1meter)	138021	9.33	237	10.24	260	50.0
4000-22 Sloped channel - 39.37" (1meter)	138022	9.57	243	10.47	266	50.9
4000-23 Sloped channel - 39.37" (1meter)	138023	9.80	249	10.71	272	51.8
4000-24 Sloped channel - 39.37" (1meter)	138024	10.04	255	10.94	278	52.7
4000-25 Sloped channel - 39.37" (1meter)	138025	10.28	261	11.18	284	53.6
4000-26 Sloped channel - 39.37" (1meter)	138026	10.51	267	11.42	290	54.5
4000-27 Sloped channel - 39.37" (1meter)	138027	10.75	273	11.65	296	55.6
4000-28 Sloped channel - 39.37" (1meter)	138028	10.98	279	11.89	302	56.5
4000-29 Sloped channel - 39.37" (1meter)	138029	11.22	285	12.13	308	57.4
<b>4030 Constant depth channel - 39.37" (1meter)</b>	<b>138036</b>	<b>11.22</b>	<b>285</b>	<b>12.13</b>	<b>308</b>	<b>58.3</b>
<b>40303 Constant depth channel - 19.69" (0.5meter)</b>	<b>138037</b>	<b>11.22</b>	<b>285</b>	<b>12.13</b>	<b>308</b>	<b>31.0</b>
4000-30 Sloped channel - 39.37" (1meter)	138030	11.46	291	12.36	314	59.2
<b>Catch basin</b>						
In-line catch basin - 19.69" (0.5m)	05620	22.13	562	23.03	585	62.0
QuickLok bar (removable)	98717	-	-	-	-	0.1
Series 900 plastic trash bucket	01498	-	-	-	-	1.1
6" oval to round adapter (fits outlets B & I)	95140	-	-	-	-	1.1
<b>Accessories</b>						
Debris strainer for 4" bottom knockout (fits outlet A)	93488	-	-	-	-	0.2
Universal closing end cap	137090	-	-	12.13	308	4.5
104-4 Inlet cap with 4" schedule 40 pipe	137091	6.50	165	7.40	188	2.6
108-4 Outlet cap with 4" schedule 40 pipe	137092	6.50	165	7.40	188	2.0
204-4 Inlet cap with 4" schedule 40 pipe	137093	8.86	225	9.76	248	3.7
208-4 Outlet cap with 4" schedule 40 pipe	137094	8.86	225	9.76	248	2.6
204-6 Inlet end cap with 6" schedule 35 pipe	137099	8.86	225	9.76	248	3.3
208-6 Outlet end cap with 6" schedule 35 pipe	137095	8.86	225	9.76	248	2.6
304-4 Inlet cap with 4" schedule 40 pipe	137096	11.22	285	12.13	308	4.6
308-4 Outlet cap with 4" schedule 40 pipe	137097	11.22	285	12.13	308	3.3
304-6 Inlet end cap with 6" schedule 35 pipe	137100	11.22	285	12.13	308	4.4
308-6 Outlet end cap with 6" schedule 35 pipe	137098	11.22	285	12.13	308	3.3

**Notes:**

1. Preformed 4" dia. & 6" flumed drill-outlet cast on underside of half meter channels only.
2. Closing cap can be cut down to suit all channels.
3. Invert depths are at the male (downstream) end - subtract 0.24" (6mm) for female invert depth **EXCEPT** constant depth channels where the invert is the same both ends.

**Part I - General**

- 1.1 **Related Work** - Work specified in other sections includes: Excavation and backfill, cast-in-place concrete, and mechanical equipment.
- 1.2 **System Description** - Interconnecting, polymer concrete modular trench drainage system.
- 1.3 **Submittals** - On request, shop drawings showing schematic plan of total drainage system listing all parts with center-line dimensions. Copies of manufacturer's recommended installation instructions.
- 1.4 **Project History** - Manufacturer to provide list of installed projects, if required.
- 1.5 **Warranty** - Limited one year product warranty based on installation according to manufacturer's installation instructions (see below).

**Part II - Product**

- 2.1 **Products** - Manufactured by ACO, Inc.
- 2.2 **Physical & Mechanical Characteristics**
  - Overall width - 5.91 inches (150mm)
  - Internal width - 4.00 inches (100mm)
  - Unit depth - varies - see Product Table
  - Unit length - 39.37 inches (1000mm), or 19.69" (500mm)
  - Compressive strength - 14,000 psi
  - Flexural strength - 4,000 psi
  - Water absorption rate - <0.1% by weight.
  - ADA compliant to American Disabilities Act of 1990 Section 4.5.4 with appropriate grate (494Q/495Q)
- 2.3 **Channel Profile** - Each unit features a full radius in trench bottom, and male to female interconnecting ends. Horizontal cast-in anchoring features on outside walls to ensure maximum mechanical bond to surrounding bedding material.
- 2.4 **Catch Basins** - Manufactured from polymer concrete, be one half meter (19.69") in length and include a trash bucket (optional).
- 2.5 **Grates** - A choice of QuickLok grates are available. See separate Spec Info sheets for details.

**Part III - Installation**

- 3.1 **Site Preparation** - Excavate area to accommodate ACO SPORT System 4000 channel and to allow a minimum of 4 inches (100mm) concrete encasement (recommended 4,000psi) on 3 sides to provide necessary support. Top of channel must be evenly aligned to surface of surrounding slab. See installation section for haunch details for different loadings & pavement materials.
- 3.2 **Installation** - Start at outlet or catch basin. Insert channels from above to allow ends to interconnect. Channel sections shall be placed on brick, rebar basket, install device, or low slump concrete slurry to obtain correct finished elevation. Cutting will be made, if required, by masonry or concrete saw. Protect channel from concrete splash during concrete pour. Place concrete in a manner that will not dislodge channels.
- 3.3 **Finishing and Clean-up** - Following final set of concrete, remove channel protection and thoroughly flush system to remove debris.
- 3.4 Install in strict accordance with manufacturer's recommendations and drawings. Full details available at [www.ACOSport.us](http://www.ACOSport.us).

**ACO, Inc.**

**West Sales Office**  
 825 W Beechcraft Street  
 Casa Grande, AZ 85122  
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 Toll Free: (888) 490-9552  
 Fax: (520) 421-9899

**Northeast Sales Office**  
 9470 Pinecone Drive  
 Mentor, OH 44060  
 Tel: (440) 639-7230  
 Toll free: (800) 543-4764  
 Fax: (440) 639-7235

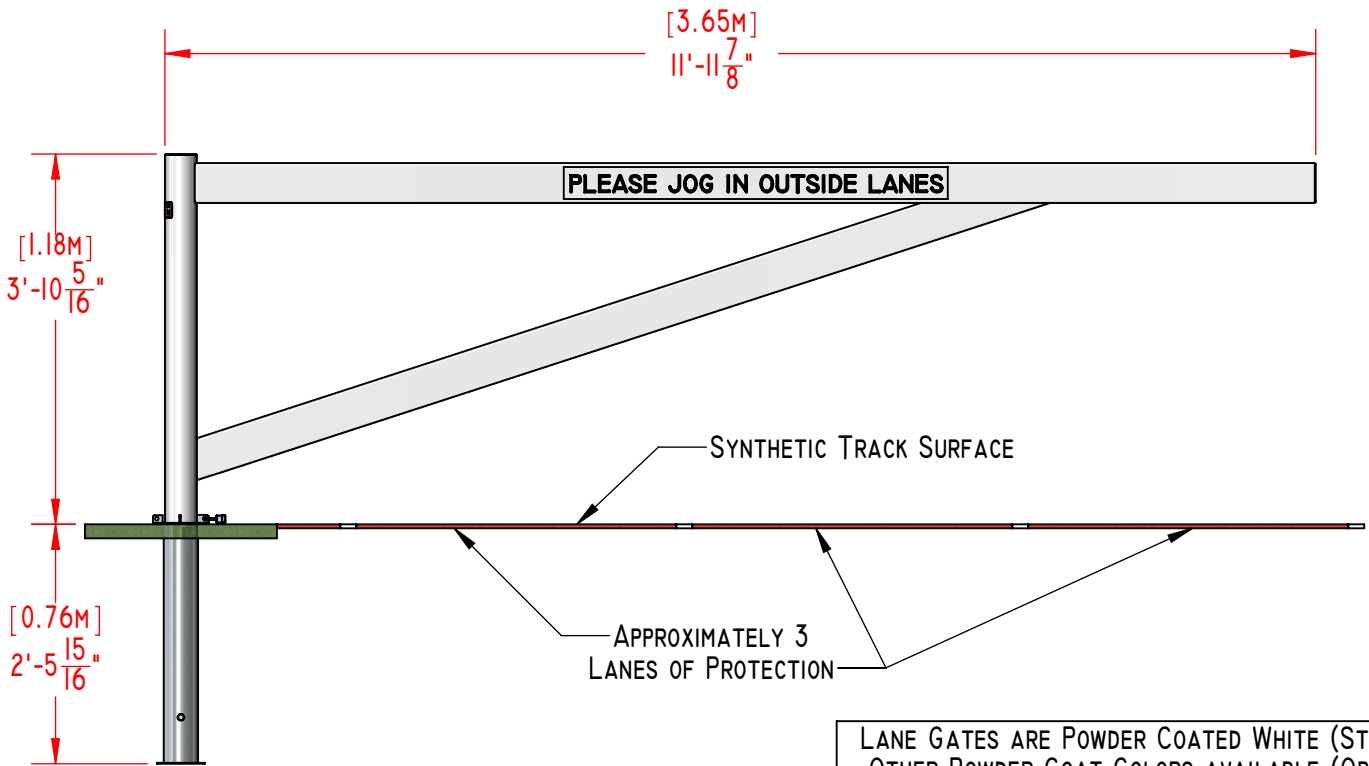
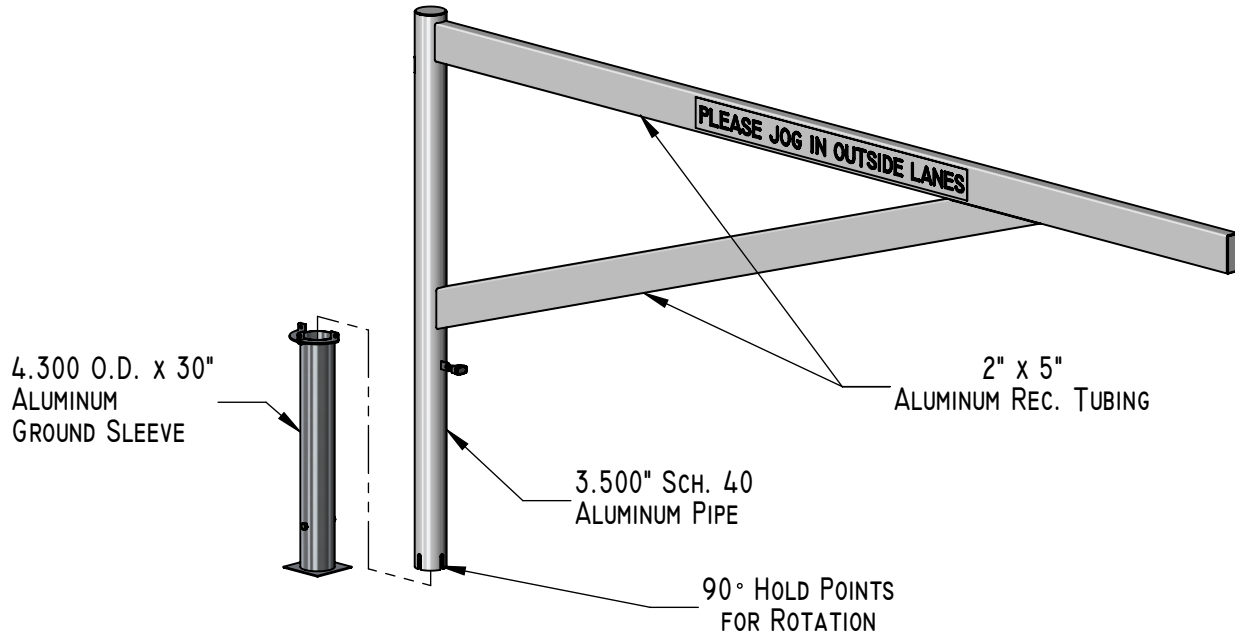
**Southeast Sales Office**  
 4211 Pleasant Road  
 Fort Mill, SC 29708  
 Toll free: (800) 543-4764  
 Fax: (803) 802-1063



**Electronic Contact:**  
[info@ACOSport.us](mailto:info@ACOSport.us)  
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LANE GATES ARE POWDER COATED WHITE (STANDARD)  
 OTHER POWDER COAT COLORS AVAILABLE (OPTIONAL)

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**LGRTL (TFLG002AL) - LOCKING TRACK LANE GATE**

NOT TO SCALE

SPORTSFIELD SPECIALTIES INC 02232017

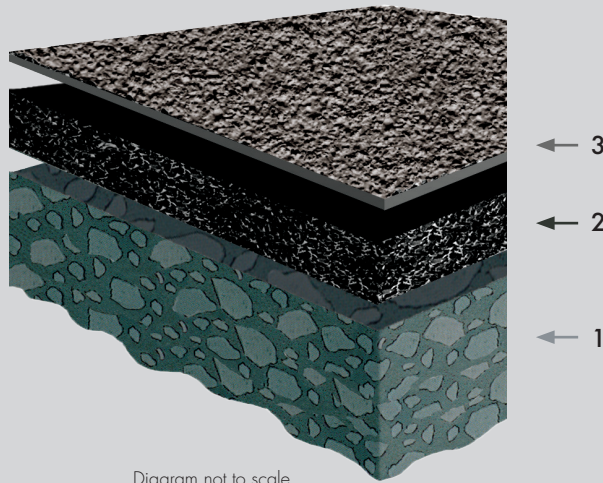




## PLEXITRAC LIGHTNING RUNNING TRACK

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1. Asphalt or Concrete
2. Plexitrac Binder with SBR Rubber
3. Plexitrac Coating



- Comprised of select black SBR rubber granules bound together with a black pigmented Plexitrac Binder and topped with a highly pigmented finish coat for UV stability
- Meets International Association of Athletic Federation (IAAF) requirements for vertical deformation, force reduction, coefficient of friction, and elongation at break
- Composition may be eligible for LEED credits
- Five year manufacturers warranty is available through CSS authorized applicator

MULTI-SPORT SURFACE SOLUTIONS FOR:



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MULTI-PURPOSE

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The most economical solutions in our line, yet there is no compromise to quality: Made from select black SBR rubber granules bound with a black pigmented Plexitrac® Binder, the track is top coated with a highly pigmented black finish coat using either Plexitrac® Coating or Surfacer. This provides the track with additional long-term UV light stability and abrasion resistance.



Top image:  
Harding Academy  
Nashville, Tennessee

Bottom image:  
Harding Academy  
Nashville, Tennessee



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Since 1953, California Sports Surfaces has provided customers with a premier offering of acrylic surface systems. Our products include DecoTurf, Plexipave, Rebound Ace, Plexitrac, Guardian Crack Repair, Premier Sports and Premier Sports Coatings. We provide the world with comfortable, high-performance cushioned surfaces for a variety of professional, collegiate and recreational sports as well as decorative projects, bike lanes, parking lots and more.

OWNER: OAK RIDGE SCHOOLS  
1450 OAK RIDGE TURNPIKE  
OAK RIDGE, TENNESSEE 37830  
PHONE: 865-425-3171

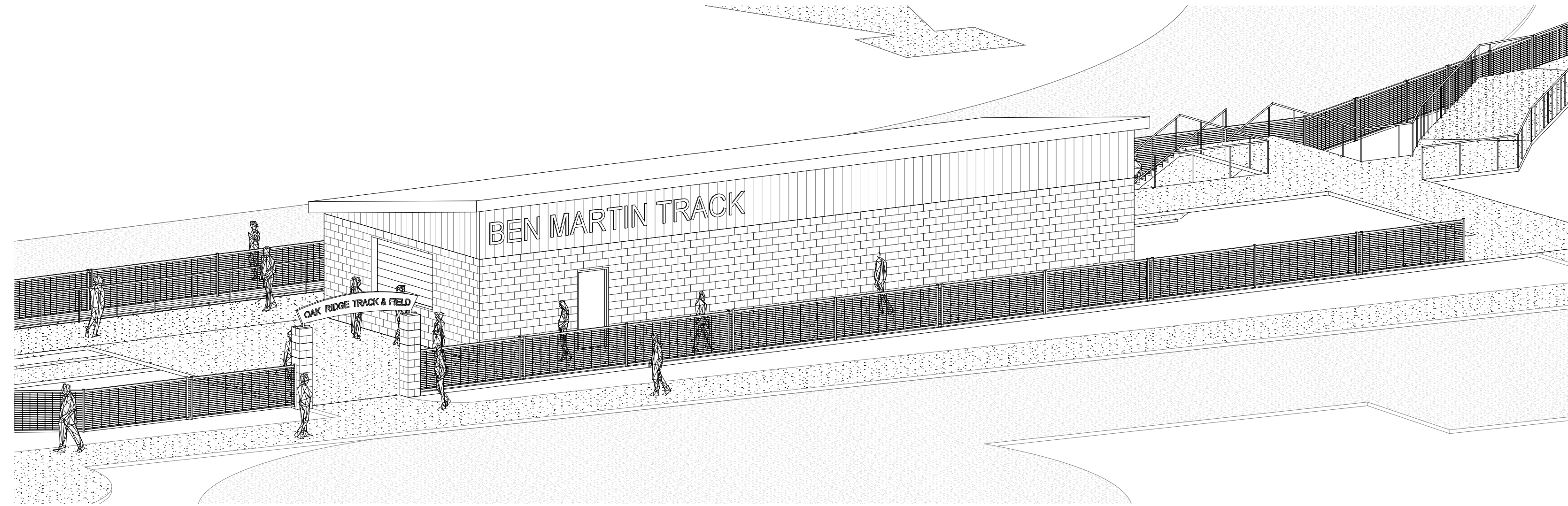
CIVIL: CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
2704 CHEROKEE FARM WAY  
KNOXVILLE, TENNESSEE 37920  
PHONE: 865-977-9997

ELECTRICAL: VREELAND ENGINEERS INC.  
3107 SUTHERLAND AVE.  
KNOXVILLE, TENNESSEE 37939  
PHONE: 865-637-4451



2607 Kingston Pike, Suite 5  
Knoxville Tennessee, 37919  
tel: 865.694.9000  
www.copearchitecture.co

# PHASE 1 RENOVATIONS FOR ORHS BEN MARTIN TRACK



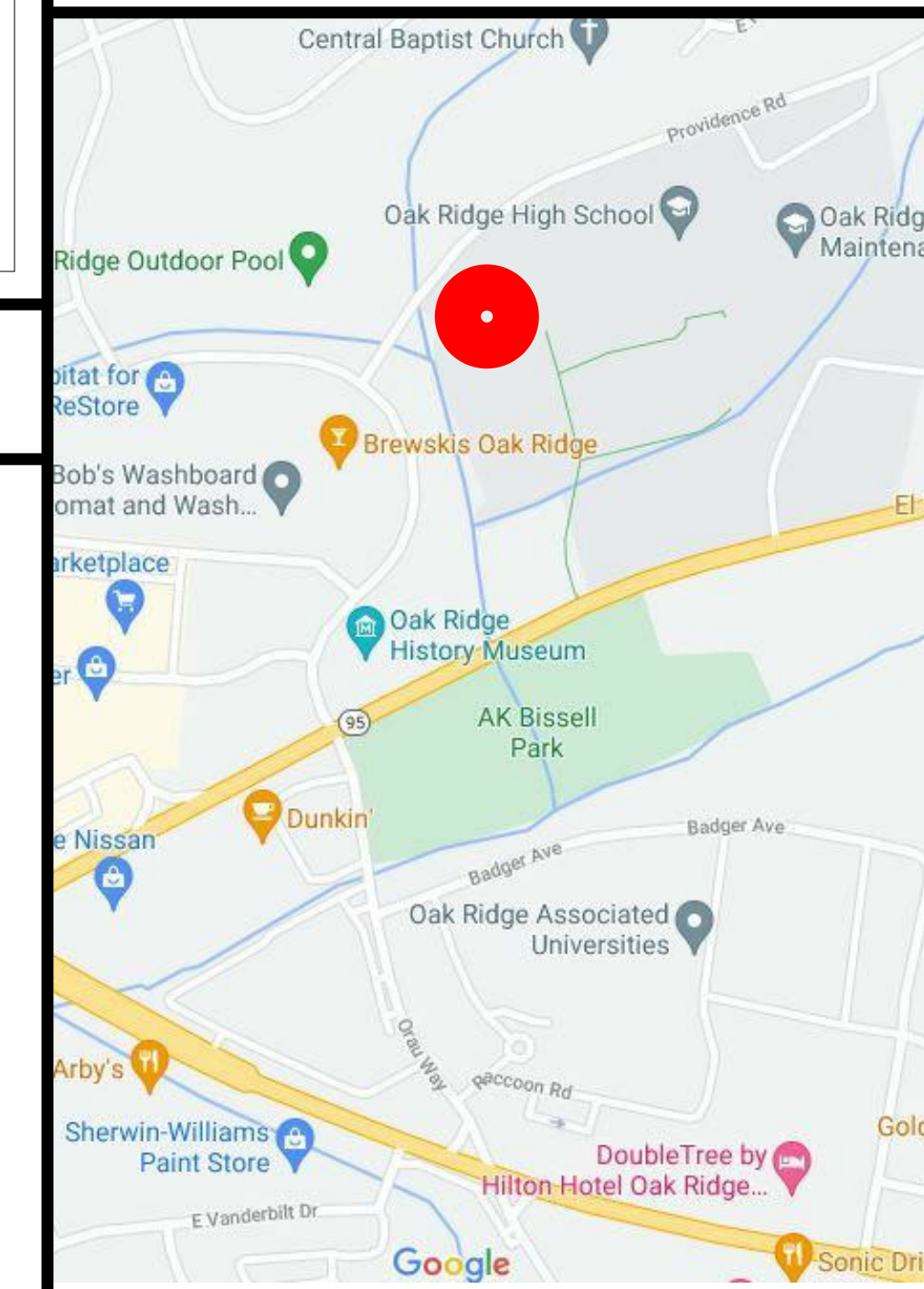
1450 OAK RIDGE TURNPIKE,  
OAK RIDGE, TN 37830

PROJECT NUMBER: 21034

## SHEET INDEX

SHEET INDEX			
SHEET NUMBER	SHEET NAME	Sheet Issue Date	Current Revision
01 - GENERAL			
G000	COVER	08/27/21	
05 - ARCHITECTURAL			
A100	ARCHITECTURAL SITE PLAN - PHASE 1	08/27/21	
02 - CIVIL			
C001	GENERAL NOTES	08/27/21	
C100	EXISTING CONDITIONS & DEMOLITION PLAN	08/27/21	
C200	LAYOUT PLAN	08/27/21	
C300	GRADING PLAN	08/27/21	
C400	DRAINAGE PLAN	08/27/21	
C500	UTILITY PLAN	08/27/21	
C800	CONSTRUCTION DETAILS	08/27/21	
C801	CONSTRUCTION DETAILS	08/27/21	
C900	EROSION PREVENTION AND SEDIMENT CONTROL PLAN INITIAL PHASE	08/27/21	
C901	EROSION PREVENTION AND SEDIMENT CONTROL PLAN CONSTRUCTION PHASE	08/27/21	
C902	EPSC DETAILS	08/27/21	
02 - ELECTRICAL			
E100	SITE PLAN - TRACK LIGHTING & IN-GRADE ELECTRICAL	08/27/21	
E101	SCHEDULES, DETAILS	08/27/21	
E102	SITE PLAN - ILLUMINATION	08/27/21	

## SITE LOCATION



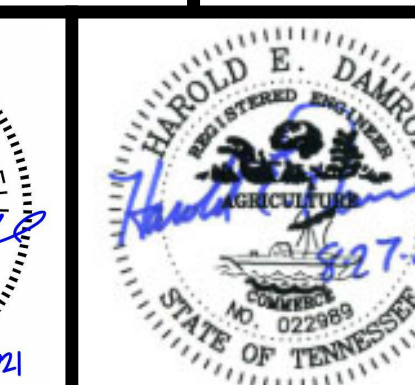
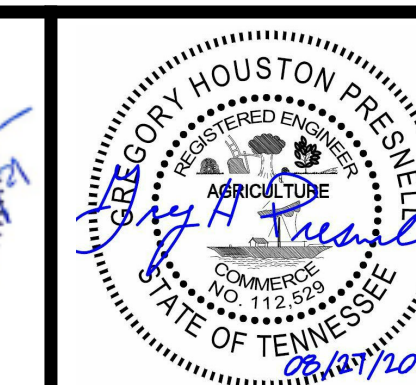
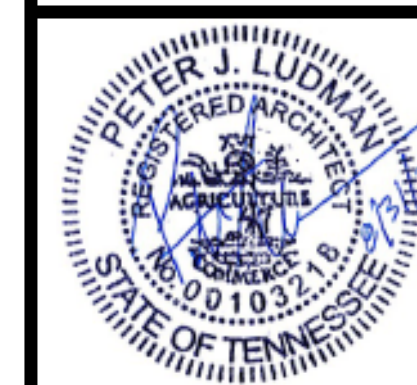
## PROJECT MILESTONES

## SET NO.

## PROJECT DATA

<p><b>PROJECT DESCRIPTION</b></p> <p><b>JURISDICTION</b> CITY OF OAK RIDGE 200 S. TULANE AVE OAK RIDGE, TN 37830 PHONE NUMBER: 865-425-3532</p> <p><b>LOCAL CODES OFFICIAL:</b> OAK RIDGE BUILDING PERMITS ARNOLD BLACKWELL 200 S. TULANE AVE OAK RIDGE, TN 37830 PHONE NUMBER: 865-425-3583</p> <p><b>FIRE CHIEF:</b> TRAVIS SOLOMON 609 OAK RIDGE TURNPIKE OAK RIDGE, TN 37830 PHONE NUMBER: 865-425-3912</p> <p><b>APPLICABLE CODES &amp; GUIDELINES</b> 2018 INTERNATIONAL BUILDING CODE, EXCEPT CH. 11 &amp; 34 2017 NATIONAL ELECTRICAL CODE 2018 INTERNATIONAL FIRE CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL RESIDENTIAL CODE 2018 INTERNATIONAL ENERGY CONSERVATION CODE 2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES CODE</p>	<p><b>TYPE OF CONSTRUCTION:</b> TYPE V-B</p> <p><b>OCCUPANCY:</b> GROUP S-2</p> <p><b>NUMBER OF STORIES:</b> 1</p> <p><b>BUILDING AREA:</b> ALLOWABLE: X SF INCREASE DUE TO FRONTAGE: X SF INCREASE DUE TO SPRINKLER PROTECTION: X SF TOTAL ALLOWABLE: X SF ADDITION ACTUAL: X SF</p> <p><b>BUILDING HEIGHT:</b> ALLOWABLE: X ACTUAL: X</p> <p><b>OCCUPANT LOAD/FLOOR:</b> X</p> <p><b>FIRE PROTECTION HOURLY RATING FOR ALL STRUCTURAL COMPONENTS AND SEPARATION OF HAZARDOUS COMPONENTS REQUIRED BY THE APPLICABLE BUILDING CODE:</b>  <table border="0"> <tr> <td>□ COLUMNS</td> <td>□ BEAMS</td> <td>□ WALLS</td> </tr> <tr> <td>□ FLOOR/CEILING</td> <td>□ ROOF/CEILING</td> <td>□ ROOF COVERING</td> </tr> <tr> <td>□ CORRIDORS</td> <td>N/A SHAFT ENCLOSURES</td> <td>N/A STAIR ENCLOSURE</td> </tr> <tr> <td>N/A TENANT SEPARATIONS</td> <td></td> <td></td> </tr> <tr> <td>N/A OCCUPANCY SEPARATIONS</td> <td></td> <td></td> </tr> </table> </p> <p><b>SPRINKLER SYSTEM TYPE:</b> NFPA 13 AUTOMATED SPRINKLER SYSTEM</p> <p><b>STANDPIPE SYSTEM:</b> N/A</p> <p><b>FIRE/SMOKE ALARM SYSTEM:</b> NFPA 72</p> <p><b>IECC CLIMATE ZONE:</b> 4</p> <p><b>SEISMIC DESIGN CATEGORY:</b></p> <p><b>SITE CLASS:</b></p>	□ COLUMNS	□ BEAMS	□ WALLS	□ FLOOR/CEILING	□ ROOF/CEILING	□ ROOF COVERING	□ CORRIDORS	N/A SHAFT ENCLOSURES	N/A STAIR ENCLOSURE	N/A TENANT SEPARATIONS			N/A OCCUPANCY SEPARATIONS		
□ COLUMNS	□ BEAMS	□ WALLS														
□ FLOOR/CEILING	□ ROOF/CEILING	□ ROOF COVERING														
□ CORRIDORS	N/A SHAFT ENCLOSURES	N/A STAIR ENCLOSURE														
N/A TENANT SEPARATIONS																
N/A OCCUPANCY SEPARATIONS																

<p><b>DETAIL CALLOUT</b></p> <p>Drawing Number Sheet Number</p> <p><b>ELEVATION KEY</b></p> <p>Direction of View</p> <p><b>SECTION KEY</b></p> <p>Extent/ Direction of Section</p> <p><b>INTERIOR ELEVATION KEY</b></p> <p>Direction of View Sheet Number Elevation Number</p> <p>Identifier Door Number</p> <p>Identifier Partition Type</p>	<p><b>ELEVATION MARKER</b></p> <p>XX'-XX" A.F.F.</p> <p><b>SPOT ELEVATION</b></p> <p>X'</p> <p><b>NORTH INDICATOR</b></p> <p>F.F.E. = FINISH FLOOR ELEVATION</p> <p>Identifier Window Type</p> <p><b>ROOM NAME</b></p> <p>Identifier Room Name</p> <p>Identifier Room Number</p>
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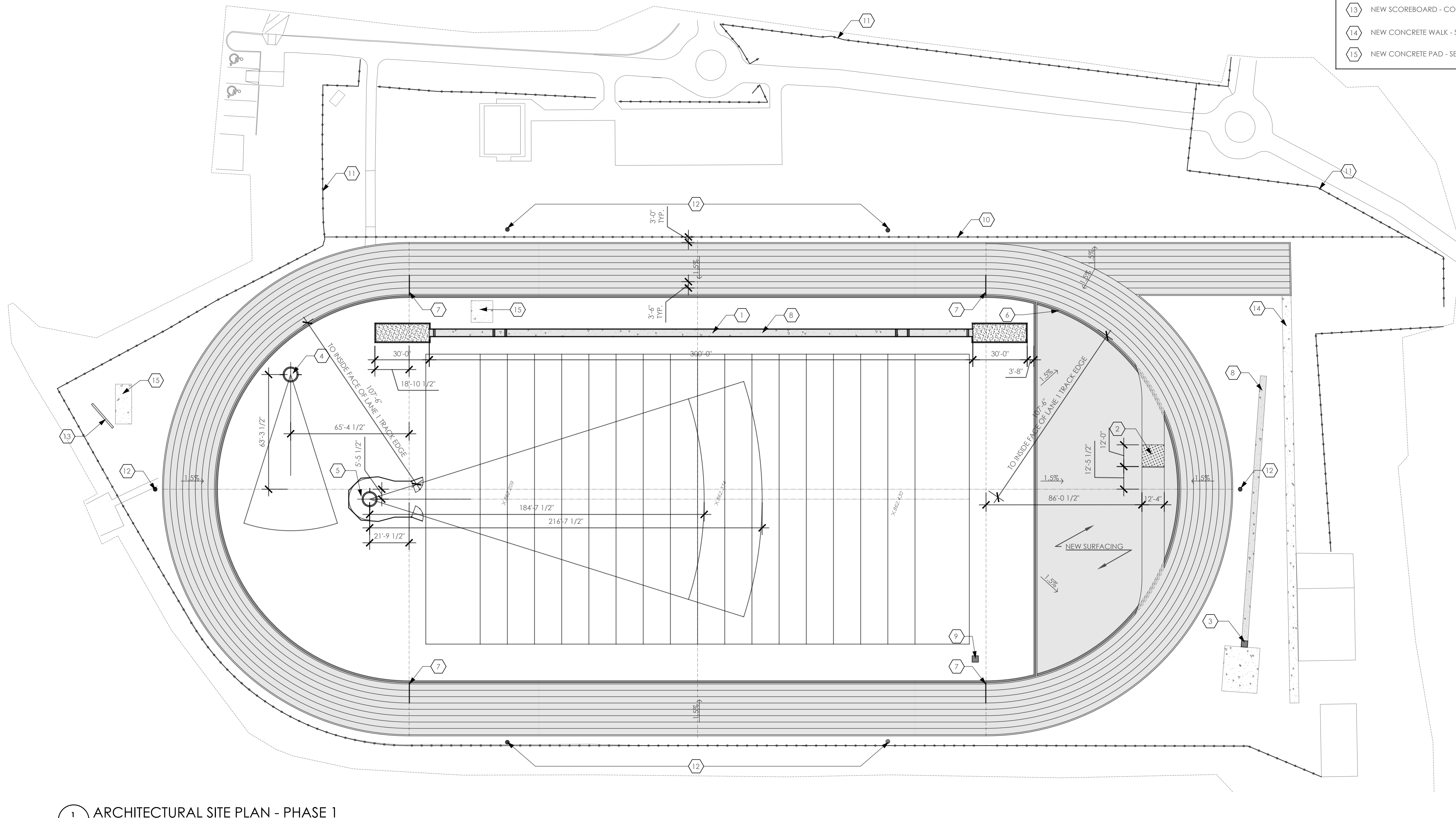


**GENERAL**

THE EXISTING TRACK WILL BE RELOCATED AND REPLACED W/ A NEW TRACK SURFACE. THE TRACK WILL CONSIST OF EIGHT (8) 3'-6" WIDE LANES W/ LANE GATES FOR LANES 1-3. A NEW 8" CONCRETE CURB WILL BE INSTALLED ON THE OUTER FACE OF THE NEW TRACK. A TRENCH DRAIN WILL BE INSTALLED ON THE INSIDE FACE OF LANE 1 (REFER TO CIVIL FOR DETAILS). NEW TRACK/FIELD COMPONENTS WILL BE LOCATED PER THE SITE PLAN. ALL TRACK/FIELD COMPONENTS ARE TO COMPLY W/ TSSAA STANDARDS.

**INSTALLATION KEYNOTE LEGEND**

- 1 LONG/TRIPLE JUMP - LTJTB12 (TLTP012SS-SYN) 12" LONG/TRIPLE JUMP POLYBOARD TAKE-OFF BOARD SYSTEM WITH REPLACEMENT BLANKING LID
- 2 SAND PIT - SPSCHS (SP6020) JUMPFORM HIGH SCHOOL 3M X 7M SAND PIT WITH SAND CATCHERS
- 3 STEEPLECHASE LANE - SCWJF550 STEEPLECHASE WATER JUMP PIT FORMING SYSTEM
- 4 POLE VAULT BOX - PVBSS (FPV002SS) STAINLESS STEEL VAULT BOX
- 5 SHOT PUT - TRSPHAW (TFSWRING) SHOT PUT/HAMMER WEB REINFORCED THROW RING SHOT PUT - SP7BCARHS (TFSPT00IAL) - HIGH SCHOOL SHOT PUT TOE BOARD RECESSED CONCRETE PAD
- 6 DISCUS - TRDAW (TFDWRING) DISCUS WEB REINFORCED THROW RING DISCUS - DCHS (TFDCHS) - HIGH SCHOOL DISCUS CAGE WITH OPTIONAL BACKUP SAFETY NET
- 7 TRENCH DRAIN - SYSTEM 4000 OPEN CHANNEL TRENCH DRAIN SYSTEM
- 8 LANE GATE - LGRTL (TLG002AL) - LOCKING TRACK LANE GATE
- 9 NEW ATHLETIC SURFACE - CALIFORNIA SPORT SURFACES - PLEXITRAC LIGHTNING RUNNING TRACK
- 10 NEW WATER SUPPLY PROVIDED BY OWNER. COORDINATE INSTALLATION W/ O.R.S. PRIOR TO CONSTRUCTION OF TRACK.
- 11 NEW FENCING BY OWNER
- 12 EXISTING FENCING TO REMAIN
- 13 FACE OF LIGHT POLES TO BE A MINIMUM OF 3'-0" AWAY FROM EDGE OF 8" CONCRETE CURB. SEE ELECTRICAL FOR POWER REQUIREMENTS - COORDINATE LOCATION W/ FENCING.
- 14 NEW SCOREBOARD - COORDINATE LOCATION W/ OWNER.
- 15 NEW CONCRETE WALK - SEE CIVIL
- 16 NEW CONCRETE PAD - SEE CIVIL



RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

**COPE** architecture

Cope Associates, Inc., Suite 5  
 2607 Kingston Pike, Knoxville, Tennessee 37919  
 tel: 865.694.9000  
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ARCHITECTURAL SITE  
 PLAN - PHASE 1

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REVISIONS

NO.	DATE	DESCRIPTION

DATE: 08/27/21



DWG NO.

**A100**

PROJECT NO.

21034

FULL SHEET SIZE: 24"X36"

**1** ARCHITECTURAL SITE PLAN - PHASE 1  
 A100 1" = 30'-0"

## GENERAL NOTES

- EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT FROM THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- EXISTING SITE INFORMATION / TOPOGRAPHIC SURVEY WAS PREPARED BY CEC, DATED JULY 2021.
- THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES (INCLUDING THOSE LABELED PER RECORD DATA) PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS. INFORM ENGINEER OF ANY CONFLICTS DETRIMENTAL TO THE DESIGN INTENT.
- 72 HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES: THE TENNESSEE UTILITY PROTECTION SERVICES, AND ALL OTHER AGENCIES THAT MAY HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NON-MEMBERS OF TENNESSEE UNDERGROUND PROTECTION, INC.
- THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL OBTAIN A PERMIT FOR ALL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REGULATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, AND PAY ALL REQUIRED FEES PRIOR TO BEGINNING WORK.
- ANY WORK PERFORMED IN THE LOCAL OR STATE RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL OR STATE REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
- THE CONTRACTOR IS TO PERFORM ALL INSPECTIONS AS REQUIRED BY THE TDEC FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND FURNISH OWNERS REPRESENTATIVE WITH WRITTEN REPORTS. OWNER WILL OBTAIN NPDES PERMIT.
- CONTRACTOR SHALL IMPLEMENT ALL SOIL AND EROSION CONTROL, PRACTICES REQUIRED BY OAK RIDGE AND THE TDEC.
- ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH SPECIFICATIONS.
- ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
- THE CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
- BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
- ADJUST/RECONSTRUCT ALL EXISTING CASTINGS, CLEANOUTS, ETC. WITHIN PROJECT AREA TO GRADE AS REQUIRED.
- CONTRACTOR TO REMOVE & REPLACE PAVEMENT AS SPECIFIED.

## DEMOLITION NOTES

- ALL EXISTING ABOVE AND BELOW GROUND STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED UNLESS NOTED OTHERWISE WITHIN THIS CONSTRUCTION SET AND/OR PROJECT SPECIFICATIONS. THIS INCLUDES FOUNDATION SLABS, WALLS AND FOOTINGS. CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE BACKFILLED WITH SATISFACTORY MATERIALS AND COMPACTED TO THE GEOTECHNICAL ENGINEER'S RECOMMENDATION.
- CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD BY THE CONTRACTOR.
- NO TREES SHALL BE REMOVED, NOR VEGETATION DISTURBED BEYOND THE LIMITS OF CONSTRUCTION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
- TREE PROTECTION FENCING SHALL BE IN ACCORDANCE WITH THE OAK RIDGE STANDARDS - OR - IN ACCORDANCE WITH THE DETAILED DRAWINGS. DO NOT OPERATE OR STORE EQUIPMENT, NOR HANDLE OR STORE MATERIALS WITHIN THE DRIP LINES OF THE TREES SHOWN TO REMAIN.
- PROTECTION OF EXISTING TREES AND VEGETATION: PROTECT EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.
- ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE IN A STATE APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO THE APPROPRIATE UTILITY COMPANY STANDARDS AND AT THE CONTRACTOR'S EXPENSE.
- ALL UTILITY DISCONNECTION, REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY / AGENCY. UTILITY CONTACTS ARE LISTED ON THE COVER SHEET.
- THE BURNING OF CLEARED MATERIAL AND DEBRIS SHALL NOT BE ALLOWED UNLESS CONTRACTOR OBTAINS PRIOR WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITIES.
- EROSION & SEDIMENT CONTROL MEASURES AROUND AREAS OF DEMOLITION SHALL BE PROPERLY INSTALLED AND FUNCTION PROPERLY PRIOR TO INITIALIZATION OF DEMOLITION ACTIVITIES.
- ASBESTOS OR HAZARDOUS MATERIALS ARE NOT EXPECTED, IF FOUND ON SITE, SUCH MATERIALS SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIALS CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF HAZARDOUS MATERIALS ARE ENCOUNTERED.
- CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE, FEDERAL AND OSHA REGULATIONS DURING ALL DEMOLITION ACTIVITIES.
- CONTRACTOR SHALL PROTECT ALL CORNER PINS, MONUMENTS, PROPERTY CORNERS AND BENCHMARKS DURING DEMOLITION ACTIVITIES. IF DISTURBED, CONTRACTOR SHALL HAVE DISTURBED ITEMS RESET BY A LICENSED SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND FEATURES TO REMAIN. ANY ITEMS TO REMAIN THAT HAVE BEEN DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC.. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH LOCAL AND/OR STATE AGENCIES REGARDING THE NEED, EXTENT AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
- PROVIDE NEAT, STRAIGHT, FULL DEPTH, SAW CUTS OF EXISTING PAVEMENT WHERE INDICATED ALONG LIMITS OF PAVEMENT DEMOLITION.
- ALL UTILITY AND STRUCTURE REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED AND PROPERLY DOCUMENTED BY A CERTIFIED PROFESSIONAL, WHEN APPLICABLE, WITH THE APPROPRIATE UTILITY COMPANY, MUNICIPALITY AND/OR AGENCY. DEMOLITION OF REGULATED ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO WELLS, ASBESTOS, UNDER GROUND STORAGE TANKS, SEPTIC TANKS AND ELECTRIC TRANSFORMERS. DEMOLITION CONTRACTOR SHALL REFER TO ANY ENVIRONMENTAL STUDIES FOR DEMOLITION RECOMMENDATIONS AND GUIDANCE. AVAILABLE ENVIRONMENTAL STUDIES MAY INCLUDE, BUT ARE NOT LIMITED TO PHASE I ESA, PHASE II, WETLAND AND STREAM DELINEATION AND ASBESTOS SURVEY. ALL APPLICABLE ENVIRONMENTAL STUDIES SHALL BE MADE AVAILABLE UPON REQUEST.
- ALL PAVEMENT, BASE COURSES, SIDEWALKS, CURBS, BUILDINGS, FOUNDATIONS, ETC., WITHIN THE AREA TO BE DEMOLISHED SHALL BE REMOVED TO FULL DEPTH. EXISTING BASE COURSE MATERIALS MAY BE WORKED INTO THE NEW PAVEMENT OR BUILDING SUBGRADE IF THE GRADATION, CONSISTENCY, COMPACTION, SUBGRADE CONDITION, ETC., ARE IN ACCORDANCE WITH THE SPECIFICATIONS AND RECOMMENDATIONS OF THE REPORT OF GEOTECHNICAL INVESTIGATION. BASE COURSE MATERIALS SHALL NOT BE WORKED INTO THE SUBGRADE AREAS TO RECEIVE LANDSCAPING.
- THE CONTRACTOR SHALL USE SUITABLE METHODS TO CONTROL DUST AND DIRT CAUSED BY THE DEMOLITION ACTIVITIES.

## LAYOUT NOTES

- THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS 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, INCLUDING IRRIGATION LINES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
- PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES, INCLUDING IRRIGATION SLEEVING, PRIOR TO INSTALLATION OF PAVED SURFACES.
- THE CONTRACTOR SHALL PROTECT ALL TREES TO REMAIN IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN, WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
- SITE DIMENSIONS SHOWN ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- COORDINATES ARE FOR BUILDING COLUMNS, EXTERIOR BUILDING WALL, CENTER OF DRIVEWAYS, CENTER OF SANITARY SEWER MANHOLES, AND CENTER OF STRUCTURE PLACED SIX INCHES INSIDE FACE OF CURB FOR DRAIN INLETS, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT / RECORD DRAWINGS ON-SITE DURING CONSTRUCTION FOR DISTRIBUTION TO THE OWNER AND/OR OWNER'S REPRESENTATIVE UPON COMPLETION.
- REFER TO THE ARCHITECTURAL, PLUMBING & ELECTRICAL DRAWINGS FOR EXACT DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRY LOCATIONS AND PRECISE BUILDING DIMENSIONS.
- THIS SITE LAYOUT IS SPECIFIC TO THE APPROVALS NECESSARY FOR THE CONSTRUCTION IN ACCORDANCE WITH THE CITY OF OAK RIDGE. NO CHANGES TO THE SITE LAYOUT ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. CHANGES MADE TO THE SITE LAYOUT WITHOUT APPROVAL IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. CHANGES INCLUDE BUT ARE NOT LIMITED TO, INCREASED IMPERVIOUS PAVEMENT, ADDITION / DELETION OF PARKING SPACES, MOVEMENT OF CURB LINES, CHANGES TO DRAINAGE STRUCTURES AND PATTERNS, LANDSCAPING, ETC.

## GRADING NOTES

- ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE.
- REFER TO AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
- SITE BUILDING PAD EXCAVATION AND CONSTRUCTION TO BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. BUILDING PAD PREPARATION SHALL BEGIN BY CLEARING & STRIPPING UNSUITABLE MATERIAL FROM PAD SITE, THEN PLACEMENT & COMPACTION OF BACKFILL MATERIAL PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. ALL BACKFILL MATERIAL MUST BE ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.
- ALL FILL UNDER PAVEMENT SHALL BE COMPACTED TO THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- ALL ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS.
- CONTRACTOR SHALL STRICTLY ADHERE TO THE EROSION & SEDIMENT CONTROL PLAN PREPARED FOR THIS PROJECT.
- EARTHWORK SHALL INCLUDE CLEARING AND GRUBBING, STRIPPING AND STOCKPILING TOPSOIL, MASS GRADING, EXCAVATION, FILLING, UNDER CUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
- CONTRACTOR TO REFILL UNDERCUT AREAS WITH SUITABLE MATERIAL AND COMPACT AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO A DEPTH INDICATED ON THE LANDSCAPE PLANS (6" MINIMUM).
- PAVEMENT SLOPES ACROSS ACCESSIBLE PARKING STALLS AND ADJOINING ACCESS AISLES SHALL BE MAXIMUM 2% AND SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
- ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION & SEDIMENT CONTROL PLAN, UNLESS NOTED OTHERWISE.
- ALL EXCESS SOIL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR BALANCING THE SITE EARTHWORK BY IMPORTING OR EXPORTING AS NECESSARY TO ACHIEVE DESIGN GRADES AND SPECIFICATIONS.

## STORM DRAINAGE NOTES

- DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION, INSPECTION, TESTING AND FINAL ACCEPTANCE OF ALL NEW STORMWATER MANAGEMENT FACILITIES CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE REGULATING AGENCIES CONCERNING INSTALLATION, INSPECTION AND APPROVAL OF THE STORM DRAINAGE SYSTEM CONSTRUCTION.
- ALL STORMWATER MANAGEMENT FACILITIES, INCLUDING COLLECTION AND CONVEYANCE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
- ANY FIELD TILE CUT IN EXCAVATION, WHICH DRAINS AN OFFSITE AREA, MUST BE TIED INTO THE STORM DRAINAGE SYSTEM.
- FOR EXACT LOCATION OF DOWN SPOUTS & ROOF DRAINS, CONTRACTOR IS TO COORDINATE WITH ARCHITECTURAL AND PLUMBING DRAWINGS.
- ALL PROPOSED STORM SEWERS, SURFACE OR OTHER DRAINAGE FACILITIES ARE TO BE PRIVATE AND MAINTAINED BY THE OWNER.
- THE CONTRACTOR IS TO CONSTRUCT CURBS, CATCH BASINS, DOWNSPOUTS, PIPING AND CONNECTION ETC. AS REQUIRED TO CONVEY THE ROOF AND PAVED SURFACE DRAINAGE TO THE DETENTION BASIN.
- ALL STORM STRUCTURES ARE TDOT TYPES UNLESS OTHERWISE INDICATED.
- ALL CATCH BASINS AND MANHOLES WITH A DEPTH GREATER THAN 4' SHALL BE PROVIDED WITH STEPS.
- TRACK DRAINAGE ITEMS TO BE CONSTRUCTED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. TRACK DRAINAGE ITEMS TO BE CONNECTED TO STORM SYSTEM IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

## UTILITY NOTES

- ALL PROPOSED UTILITY LINES AND EXTENSIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE UTILITY AGENCY SPECIFICATIONS. CONTRACTOR SHALL COORDINATE UTILITY DISCONNECTIONS WITH THE APPROPRIATE AGENCY.
- THE CONTRACTOR IS PARTICULARLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF THE EXISTING UTILITIES SHOWN HEREON IS BASED ON TOPOGRAPHIC SURVEYS AND RECORD DRAWINGS. THE CONTRACTOR SHALL NOT RELY UPON THIS INFORMATION AS BEING EXACT OR COMPLETE. SHOULD UNCHARTED UTILITIES BE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE FOR INSTRUCTIONS. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION AND REQUEST FIELD VERIFICATION OF UTILITY LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE EXISTING UTILITIES CONFLICTING WITH IMPROVEMENTS SHOWN HEREON IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- MAINTAIN MINIMUM 10-FOOT HORIZONTAL AND 18-INCH MINIMUM VERTICAL SEPARATION BETWEEN SANITARY SEWER, STORM SEWER AND WATER SUPPLY LINE, UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES, GAS LINES, AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO PAVEMENT CONSTRUCTION.
- ALL TRENCH SPOILS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
- DISTANCES SHOWN FOR BOTH SANITARY AND STORM SEWER PIPES ARE MEASURED FROM CENTER OF STRUCTURE, CONTRACTOR RESPONSIBLE FOR ACTUAL FIELD CUT LENGTH. COORDINATES FOR STORM & SANITARY STRUCTURES ARE SHOWN TO THE CENTER STRUCTURE. UNLESS OTHERWISE NOTED.
- ROOF DRAINS, FOUNDATION DRAINS AND ALL OTHER CLEAR WATER CONNECTIONS TO THE SANITARY SEWER SYSTEMS ARE PROHIBITED.
- ADJUST ALL EXISTING UTILITY SURFACE FEATURES INCLUDING BUT NOT LIMITED TO CASTINGS, VALVE BOXES, PEDESTALS, CLEANOUTS, ETC. TO MATCH PROPOSED FINISHED GRADES, UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF ALL IMPROVEMENTS. INCLUDE AT LEAST TWO DIMENSIONS TO EACH VALVE AND MANHOLE FROM KNOWN SITE FEATURES. DRAWINGS SHALL INCLUDE HORIZONTAL AND VERTICAL INFORMATION ON ALL NEW UTILITIES AS WELL AS EXISTING UTILITIES ENCOUNTERED.
- ALL WATERLINE CROSSINGS SHALL MAINTAIN A VERTICAL SEPARATION OF 18" MINIMUM. SANITARY SEWER SHALL BE LOCATED 18" BELOW WATERMAIN AT ALL CROSSINGS. WATERMAIN SHALL BE LOCATED A MINIMUM OF 10' HORIZONTALLY FROM ANY SANITARY SEWER OR STORM SEWER. ALL MEASUREMENTS SHALL BE TAKEN FROM OUTSIDE OF SEWER PIPE TO THE OUTSIDE OF WATERMAIN PIPE. ONE FULL LENGTH OF WATERMAIN PIPE SHALL BE LOCATED AT ALL CROSSINGS TO ENABLE BOTH JOINTS TO BE LOCATED AS FAR FROM SEWER AS POSSIBLE.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
1450 OAK RIDGE TURNPIKE,  
OAK RIDGE, TN 37830

**COPE** architecture

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REVISIONS		
NO.	DATE	DESCRIPTION

DATE: 08/27/2021



DWG NO.

**C001**

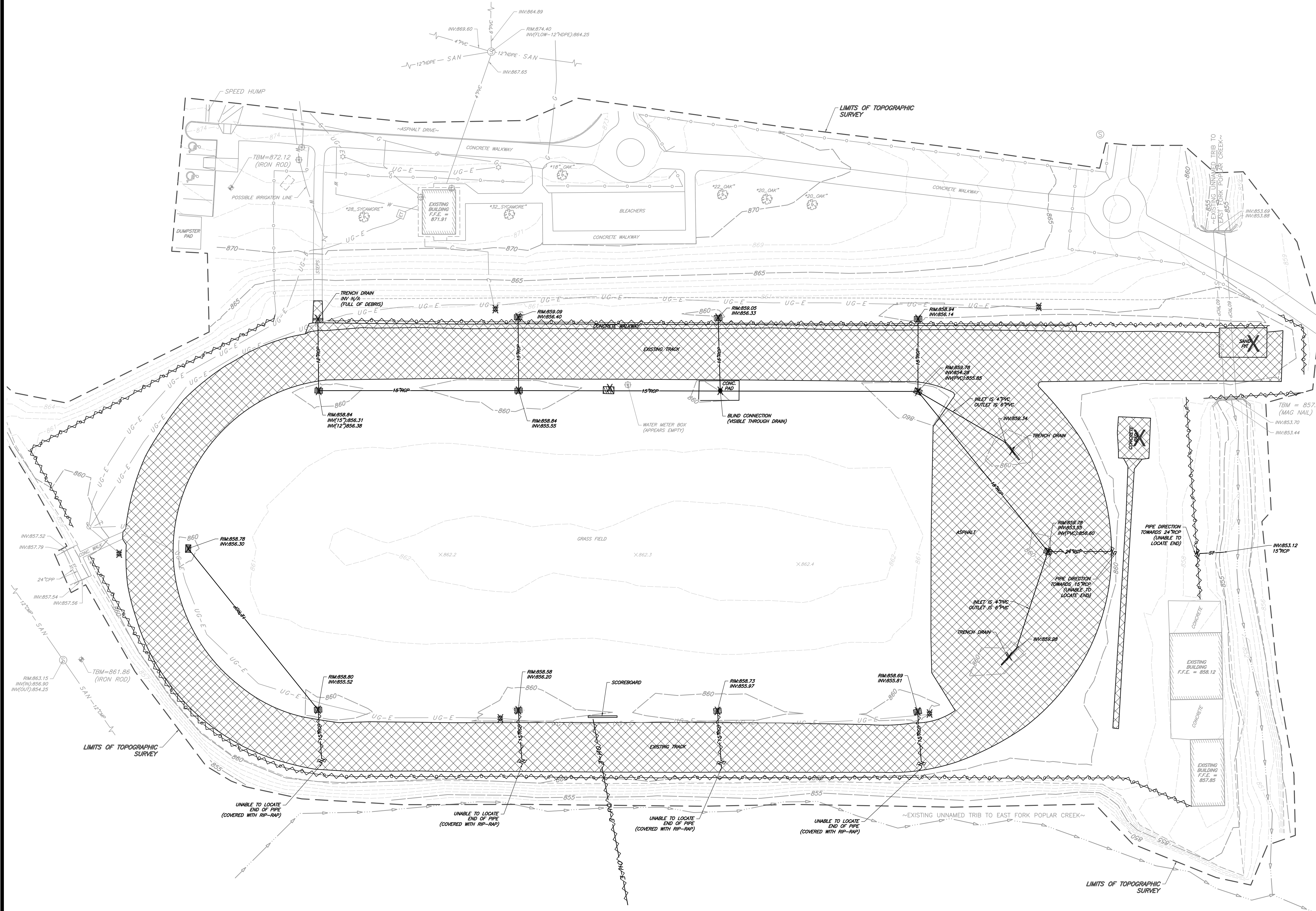
PROJECT NO.

PROJECT NUMBER:

FULL SHEET SIZE: 24"x36"



NORTH



**LEGEND**

	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
	EXISTING ELECTRIC TRANSFORMER & METER
	EXISTING POWER POLE & GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING OVERHEAD LINE
	PAVEMENT TO BE REMOVED FULL DEPTH
	OBJECT TO BE REMOVED
	LINEAR OBJECT TO BE REMOVED

- REFERENCE**
- COORDINATE REFERENCE: TENNESSEE STATE PLANE NAD83. ELEVATIONS SHOWN BASED ON NAVD83 DATUM.
  - TOPOGRAPHIC & SURVEY INFORMATION PREPARED BY CEC, DATED JULY 2021.
  - THE PROJECT AREA SHOWN ON THIS PLAN FOR DEVELOPMENT LIES IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS REFERENCED ON FEMA FIRM MAP# 47001C0219F WITH AN EFFECTIVE DATE OF 01/17/2007.
  - CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
  - ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.

- GENERAL NOTES**
- CONTRACTOR TO REFER TO ELECTRICAL DRAWINGS AND SPECS (BY OTHERS) FOR ADDITIONAL INFORMATION ON REMOVING AND/OR RELOCATING ELECTRICAL LINES AND EQUIPMENT.
  - CONTRACTOR TO COORDINATE WITH OWNER AND UTILITY COMPANIES ON REMOVING AND/OR RELOCATION UTILITIES LINES.

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 OAK RIDGE, TN 37830

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**EXISTING CONDITIONS & DEMOLITION PLAN**

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**REVISIONS**

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

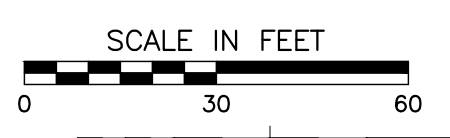


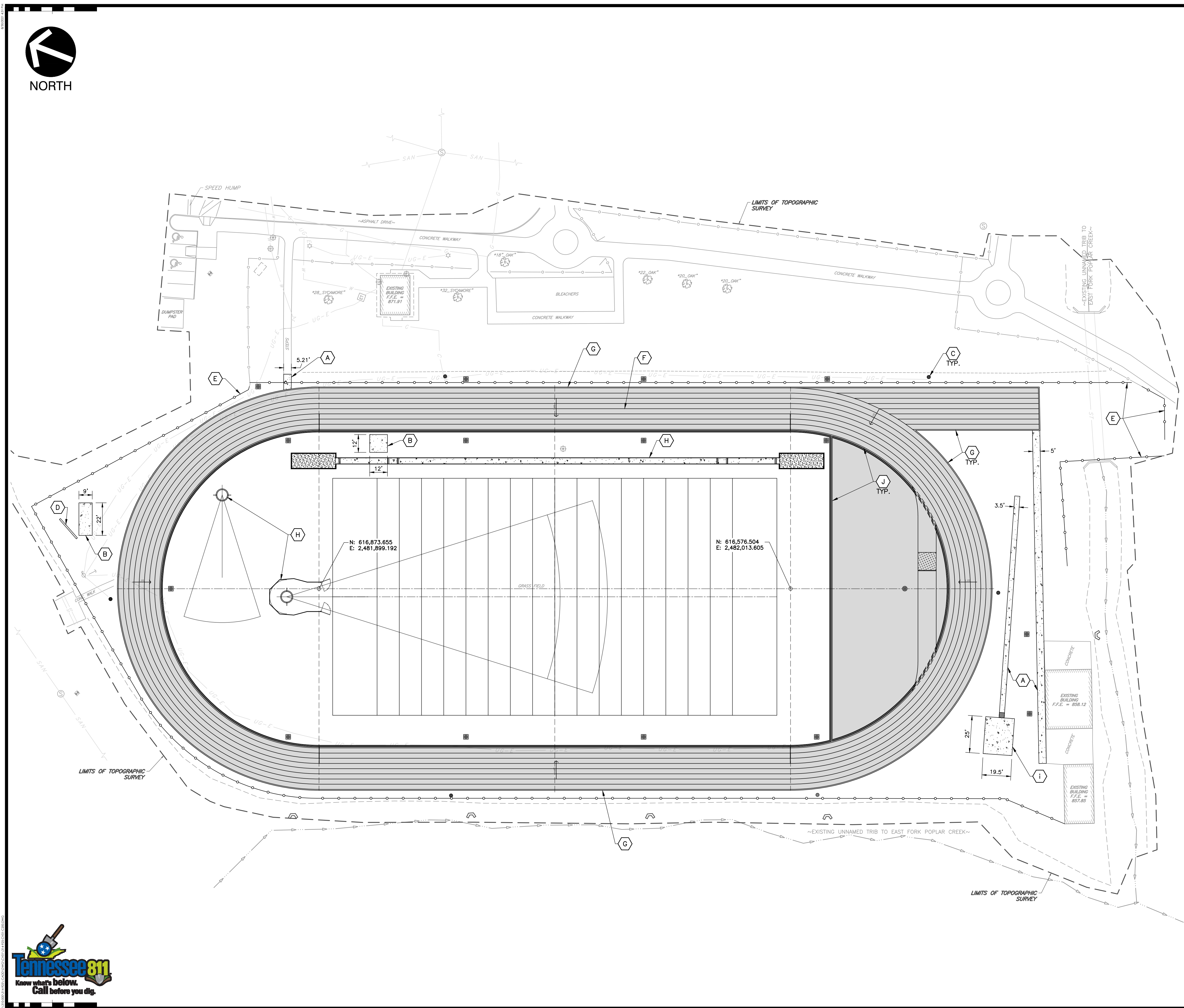
DWG NO.

**C100**

PROJECT NO. PROJECT NUMBER:

FULL SHEET SIZE: 24"x36"





**LEGEND**

	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
	EXISTING ELECTRIC TRANSFORMER & METER
	EXISTING POWER POLE & GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	PROPOSED CONCRETE
	PROPOSED FENCE
	PROPOSED FIELD LIGHT
	PROPOSED YARD DRAIN
	PROPOSED YARD DRAIN
	PROPOSED HEADWALL

- REFERENCE**
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  - ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.

**SHEET KEYNOTES**

DESCRIPTION	DETAIL
(A) PROPOSED CONCRETE SIDEWALK	(201) C800
(B) PROPOSED CONCRETE PAD	SEE ARCH. PLANS
(C) PROPOSED FIELD LIGHTING	SEE ARCH./ELEC. PLANS
(D) PROPOSED SCOREBOARD	SEE ARCH. PLANS
(E) PROPOSED FENCE	SEE ARCH. PLANS
(F) PROPOSED TRACK	SEE ARCH. PLANS
(G) PROPOSED TRACK POST CURBING	(202) C800
(H) PROPOSED TRACK & FIELD EQUIPMENT: LONG JUMP, SHOT-PUT, & DISCUS	SEE ARCH. PLANS
(i) PROPOSED POLE VAULT BOX	SEE ARCH. PLANS
(J) PROPOSED TRACK TRENCH DRAIN	(203) C800

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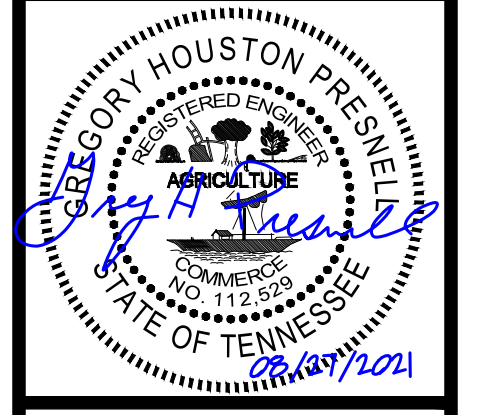
LAYOUT PLAN

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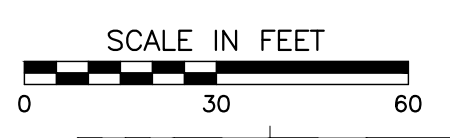
**REVISIONS**

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

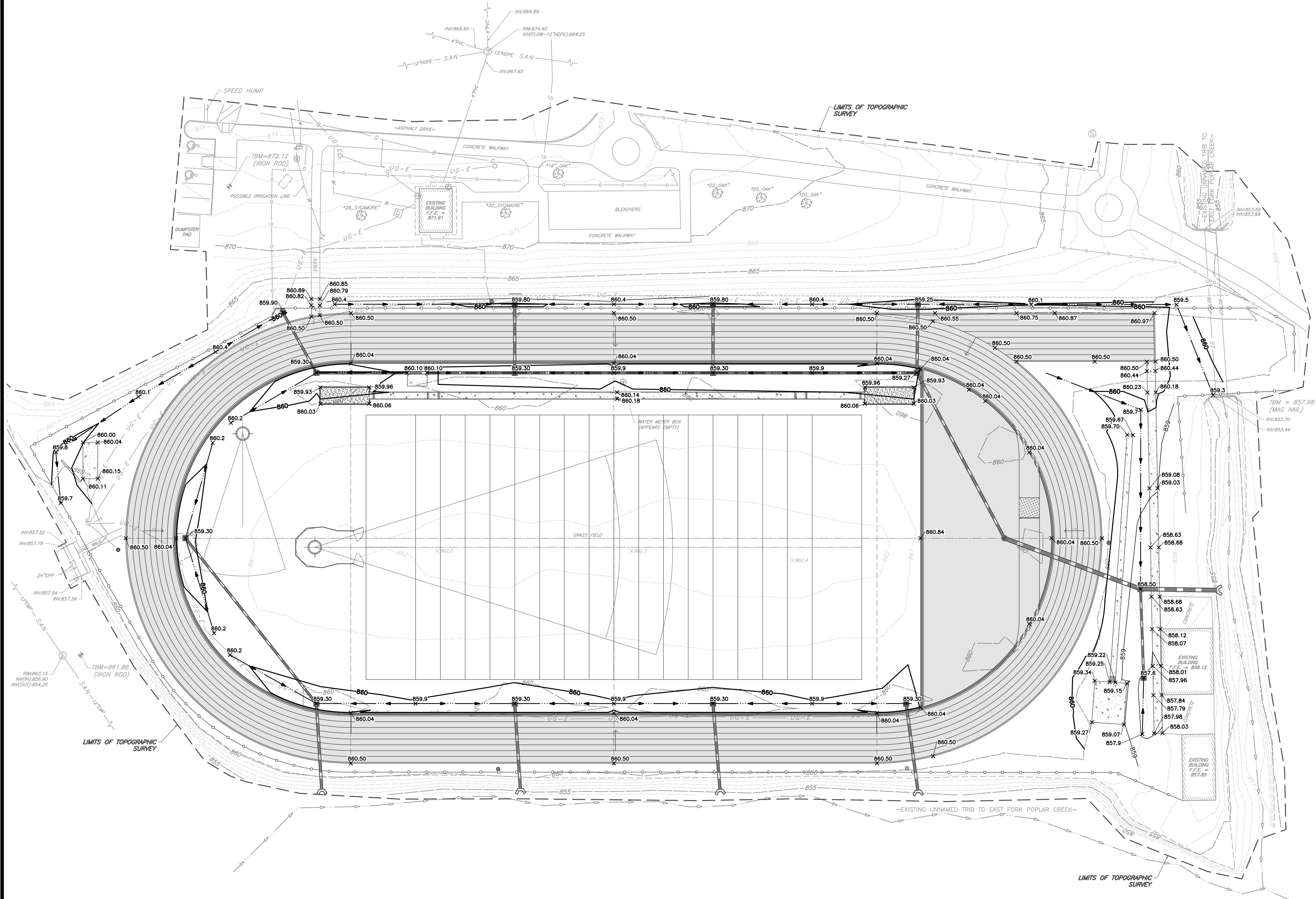


DWG NO. **C200**  
PROJECT NO. \_\_\_\_\_  
PROJECT NUMBER: \_\_\_\_\_  
FULL SHEET SIZE: 24"x36" 1/32"





NORTH



**LEGEND**

	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
	EXISTING ELECTRIC TRANSFORMER & METER
	EXISTING POWER POLE & GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	PROPOSED CONCRETE
	PROPOSED FENCE
	PROPOSED FIELD LIGHT
	PROPOSED INDEX (MAJOR) CONTOUR
	PROPOSED INTERMEDIATE (MINOR) CONTOUR
	PROPOSED SPOT ELEVATION
	PROPOSED DITCH SLOPE TO DRAIN
	PROPOSED STORM PIPE
	PROPOSED YARD DRAIN
	PROPOSED YARD DRAIN
	PROPOSED HEADWALL

- REFERENCE**
- COORDINATE REFERENCE: TENNESSEE STATE PLANE NAD83. ELEVATIONS SHOWN BASED ON NAVD83 DATUM.
  - TOPOGRAPHIC & SURVEY INFORMATION PREPARED BY CEC, DATED JULY 2021.
  - THE PROJECT AREA SHOWN ON THIS PLAN FOR DEVELOPMENT LIES IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS REFERENCED ON FEMA FIRM MAP# 47001C0219F WITH AN EFFECTIVE DATE OF 01/17/2007.
  - CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
  - ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

**cope architecture**  
 Cope Associates, Inc.  
 2607 Kingston Pike, Suite 5  
 Knoxville, Tennessee 37919  
 tel: 865.694.9000  
 www.copearchitecture.com

**GRADING PLAN**

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**REVISIONS**

NO.	DATE	DESCRIPTION

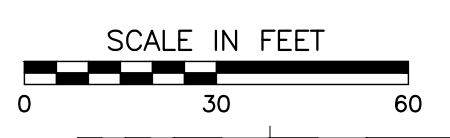
DATE: 08/27/2021



DWG NO.

**C300**

PROJECT NO. PROJECT NUMBER:

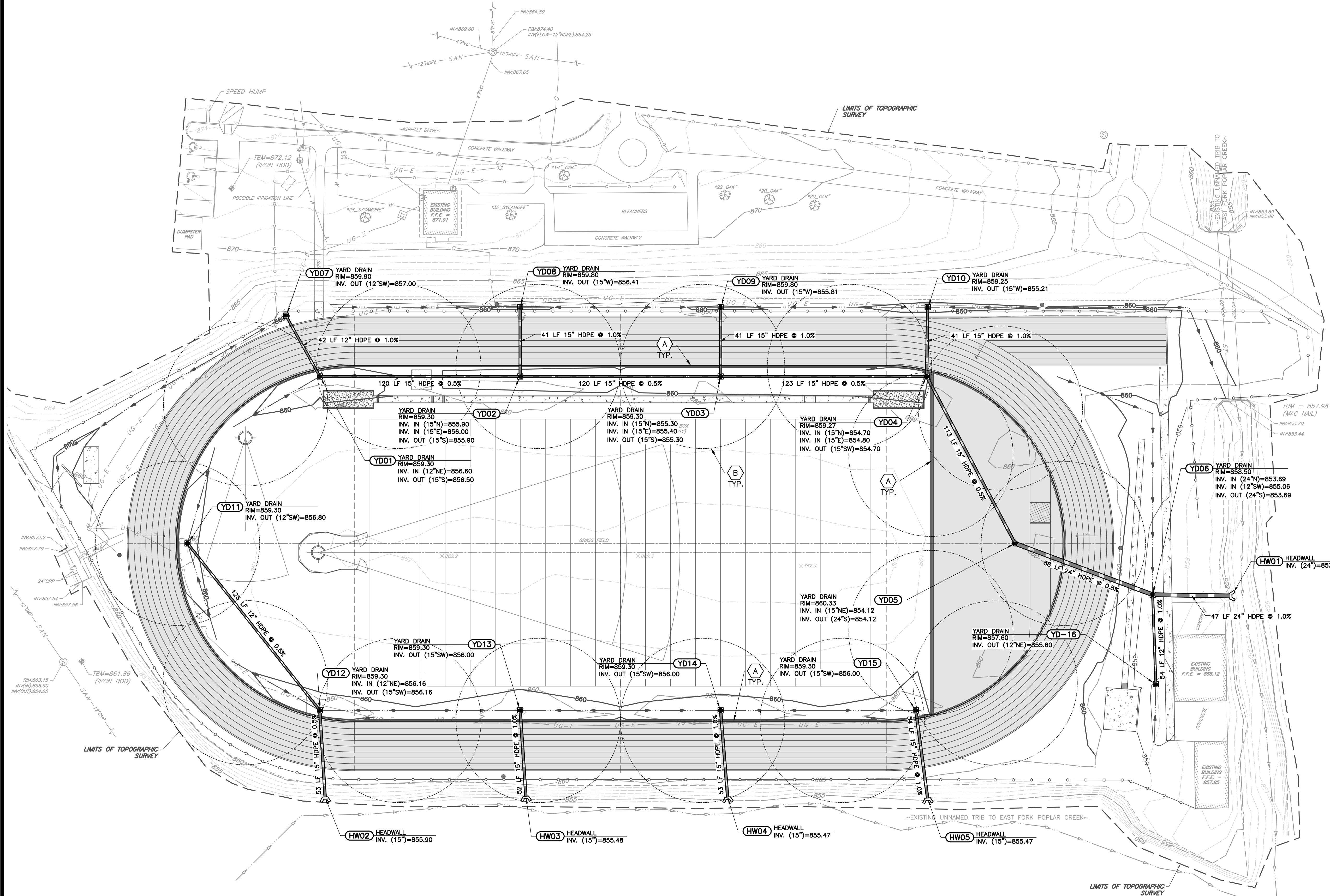


FULL SHEET SIZE: 24"x36" 100%





NORTH



**LEGEND**

	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
	EXISTING ELECTRIC TRANSFORMER & METER
	EXISTING POWER POLE & GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	PROPOSED CONCRETE
	PROPOSED FENCE
	PROPOSED FIELD LIGHT
	PROPOSED INDEX (MAJOR) CONTOUR
	PROPOSED INTERMEDIATE (MINOR) CONTOUR
	PROPOSED SPOT ELEVATION
	PROPOSED DITCH SLOPE TO DRAIN
	PROPOSED STORM PIPE
	PROPOSED YARD DRAIN
	PROPOSED YARD DRAIN
	PROPOSED HEADWALL

- REFERENCE**
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**SHEET KEYNOTES**

DESCRIPTION	DETAIL
(A) ACO SPORT SYSTEM 4000 - OPEN CHANNEL TRENCH DRAIN SYSTEM	203 C800
(B) ACO SPORT TRENCH DRAIN MAXIMUM 30 METER SLOPED CHANNEL REACH (TYP.) CONNECT SLOPED TRENCH DRAINS TO YARD INLET CATCH BASINS	203 C800

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
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**COPE architecture**  
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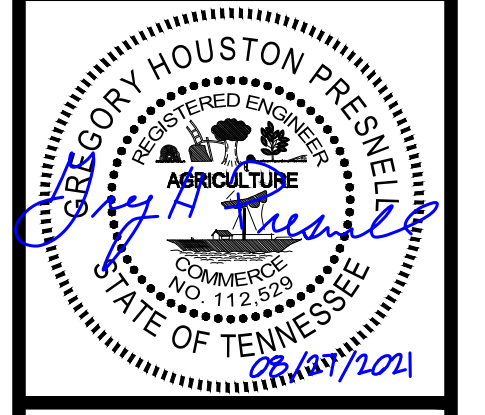
**DRAINAGE PLAN**

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**REVISIONS**

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

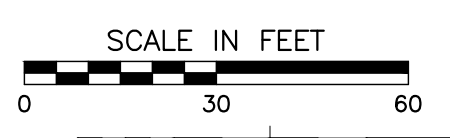


DWG NO.

**C400**

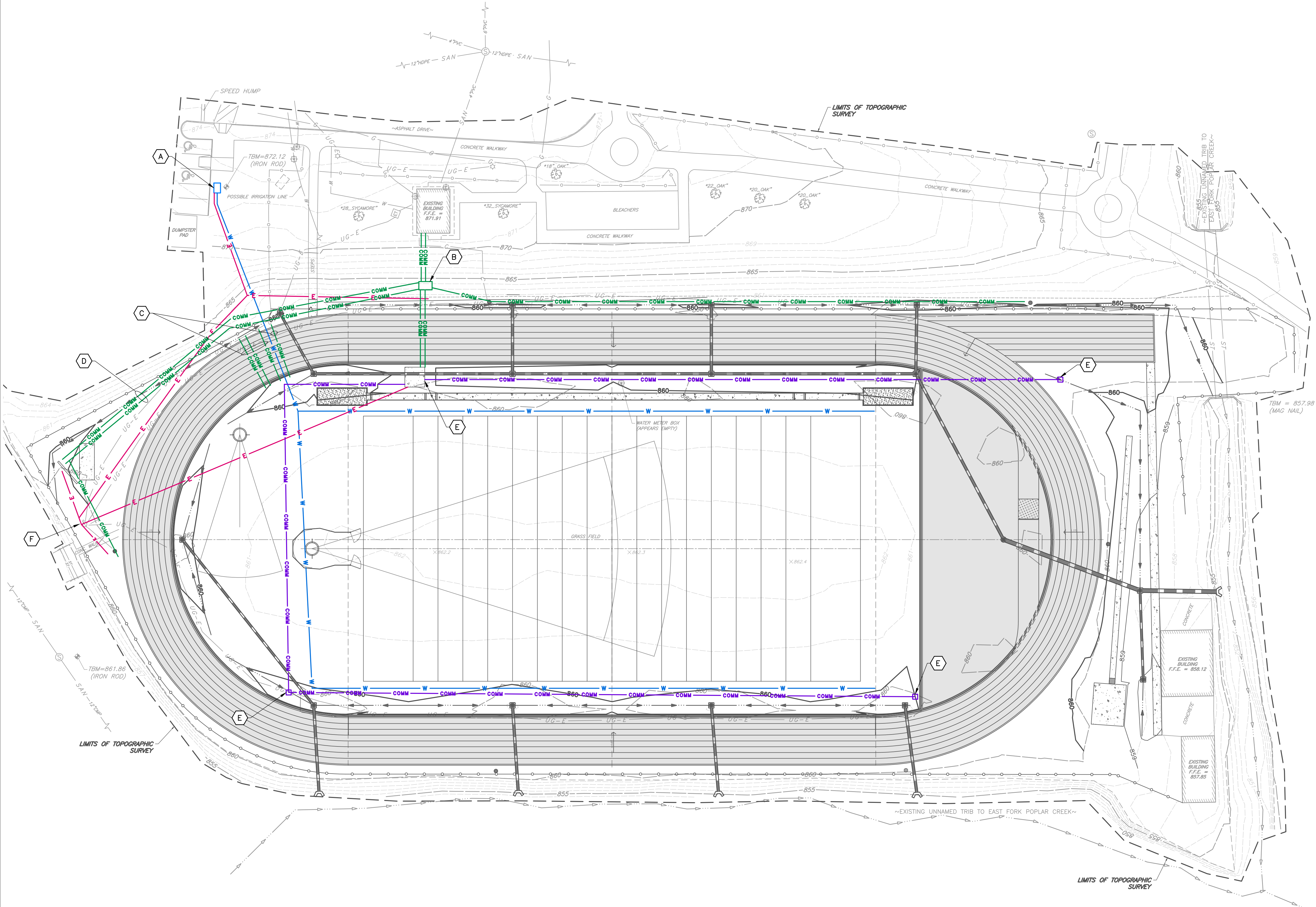
PROJECT NO. PROJECT NUMBER:

FULL SHEET SIZE: 24"x36"





DATE PLOTTED: 08/27/2021 10:04 AM



**LEGEND**

	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
	EXISTING ELECTRIC TRANSFORMER & METER
	EXISTING POWER POLE & GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	PROPOSED CONCRETE
	PROPOSED FENCE
	PROPOSED FIELD LIGHT
	PROPOSED INDEX (MAJOR) CONTOUR
	PROPOSED INTERMEDIATE (MINOR) CONTOUR
	PROPOSED SPOT ELEVATION
	PROPOSED DITCH SLOPE TO DRAIN
	PROPOSED STORM PIPE
	PROPOSED YARD DRAIN
	PROPOSED YARD DRAIN
	PROPOSED HEADWALL

	PROPOSED WATER LINE
	PROPOSED COMMUNICATION LINE
	PROPOSED ELECTRICAL LINE
	PROPOSED STARTING GUN LINE

**UTILITY NOTES**

- DRAWING SHOWN FOR INFORMATIONAL PURPOSES ONLY TO DEPICT GENERAL UTILITY ROUTING INFORMATION. DESIGN AND SIZING OF PROPOSED UTILITY LINES AND/OR CONDUITS BY OTHERS.
- CONTRACTOR TO COORDINATE WITH OWNER ON SIZING AND SPECIFICS OF UTILITY LINES AND/OR CONDUITS SHOWN.

**REFERENCE**

- COORDINATE REFERENCE: TENNESSEE STATE PLANE NAD83. ELEVATIONS SHOWN BASED ON NAVD88 DATUM.
- TOPOGRAPHIC & SURVEY INFORMATION PREPARED BY CEC, DATED JULY 2021.
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**SHEET KEYNOTES**

DESCRIPTION	DETAIL
A SPRINKLER CONTROL BOX AND BACKFLOW 2"	COORDINATE LOCATION w/ OWNER
B QUAZITE BOX CONDUIT FOR COMMUNICATIONS AND SPARE	COORDINATE w/ ELECTRICAL
C 3" SLEEVE AND SPARE	COORDINATE LOCATION w/ OWNER
D SCOREBOARD COMM AND SPARE	COORDINATE w/ ELECTRICAL
E STARTING GUN	COORDINATE w/ ELECTRICAL
F 120-208 POWER FROM STEP DOWN TRANSFORMER SCOREBOARD TIMING PAD SPRINKLER CONTROL SECURITY CAMERA	COORDINATE w/ ELECTRICAL

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
1450 OAK RIDGE TURNPIKE,  
OAK RIDGE, TN 37830

**COPE** architecture  
Cope Associates, Inc.  
2607 Kingston Pike, Suite 5  
Knoxville, Tennessee 37919  
tel: 865.694.9000  
www.copearchitecture.com

**UTILITY PLAN**

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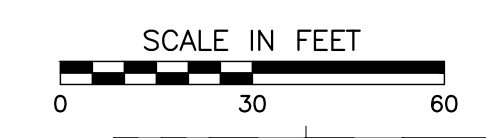
**REVISIONS**

NO.	DATE	DESCRIPTION

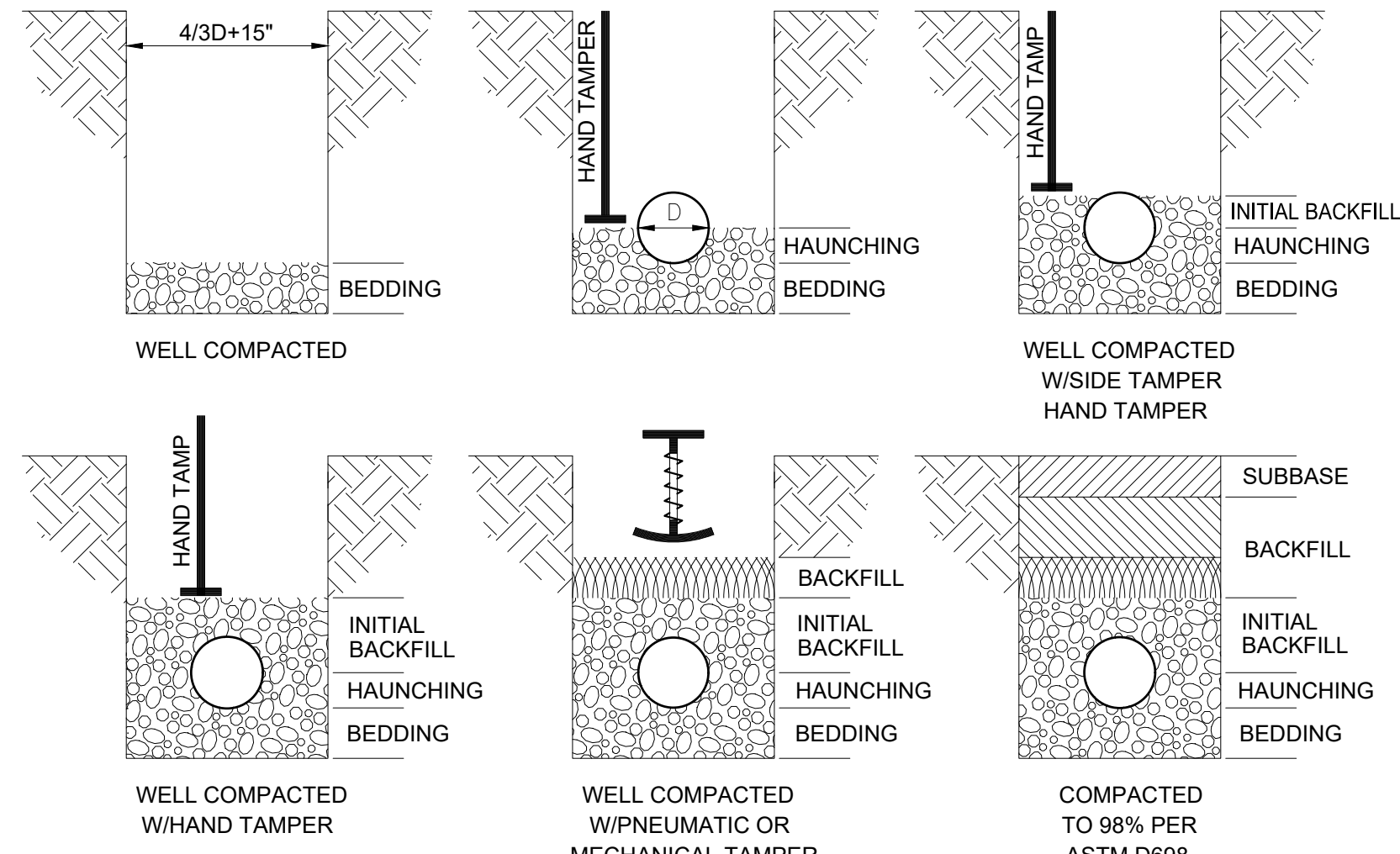
DATE: 08/27/2021

DWG NO. **C500**

PROJECT NO. \_\_\_\_\_  
PROJECT NUMBER: \_\_\_\_\_  
FULL SHEET SIZE: 24"x36"







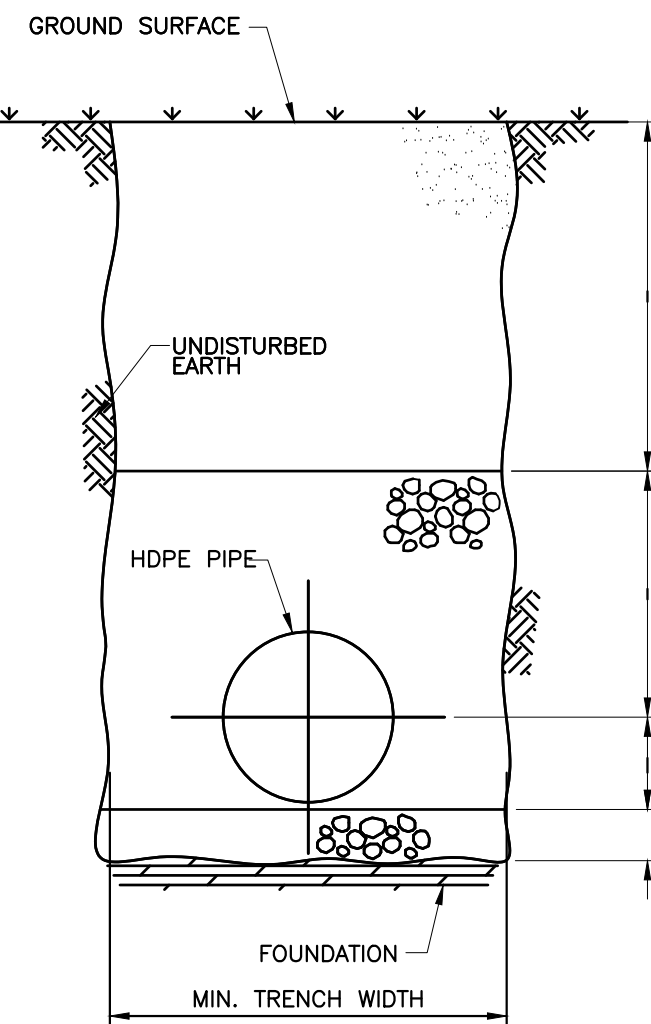
LAYER	DEPTH	MATERIAL
BEDDING	6" MIN.	CLASS I FOR FLEXIBLE PIPE, CLASS I-IV FOR RIGID PIPE
HAUNCHING	VARIES	CLASS I FOR FLEXIBLE PIPE, CLASS I-IV FOR RIGID PIPE, TAMPED IN 6" MAXIMUM LAYERS.
INITIAL BACKFILL	VARIES	CLASS I FOR FLEXIBLE PIPE, CLASS I-IV FOR RIGID PIPE
BACKFILL	VARIES	CLASS I-IV FOR ALL PIPE, 75% OF BACKFILL MATERIAL MAY CONTAIN BROKEN STONES NOT EXCEEDING 6" IN DIAMETER- TAMPED IN 6" MAXIMUM LAYERS
SUBBASE	12"	CLASS I-IV FOR ALL PIPE - EXCEPT USE T.D.O.T. MINERAL AGGREGATE BASE TYPE A, ACROSS OR ALONG EXISTING PAVEMENT

**DETAIL 401**

**TRENCH BACKFILLING & COMPACTION IN UNIMPROVED & IMPROVED AREAS**

N.T.S.

1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.



2. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100-600mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-60" (750-1500mm) CPEP.

3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

NOMINAL $\phi$ in (mm)	MIN. RECOMMENDED TRENCH WIDTH, in (mm)
4 (100)	21 (530)
6 (150)	23 (580)
8 (200)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)
24 (600)	48 (1220)
30 (750)	66 (1680)
36 (900)	78 (1980)
42 (1050)	83 (2110)
48 (1200)	89 (2260)
60 (1500)	102 (2590)

5. MINIMUM COVER: MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER, in (mm)
H25 (FLEXIBLE PAVEMENT)	*12 (300), 24 (600) FOR 60" (1500) PIPE
H25 (RIGID PAVEMENT)	12 (300), 24 (600) FOR 60" (1500) PIPE
E80 RAILWAY	24 (600)
HEAVY CONSTRUCTION	48 (1200)

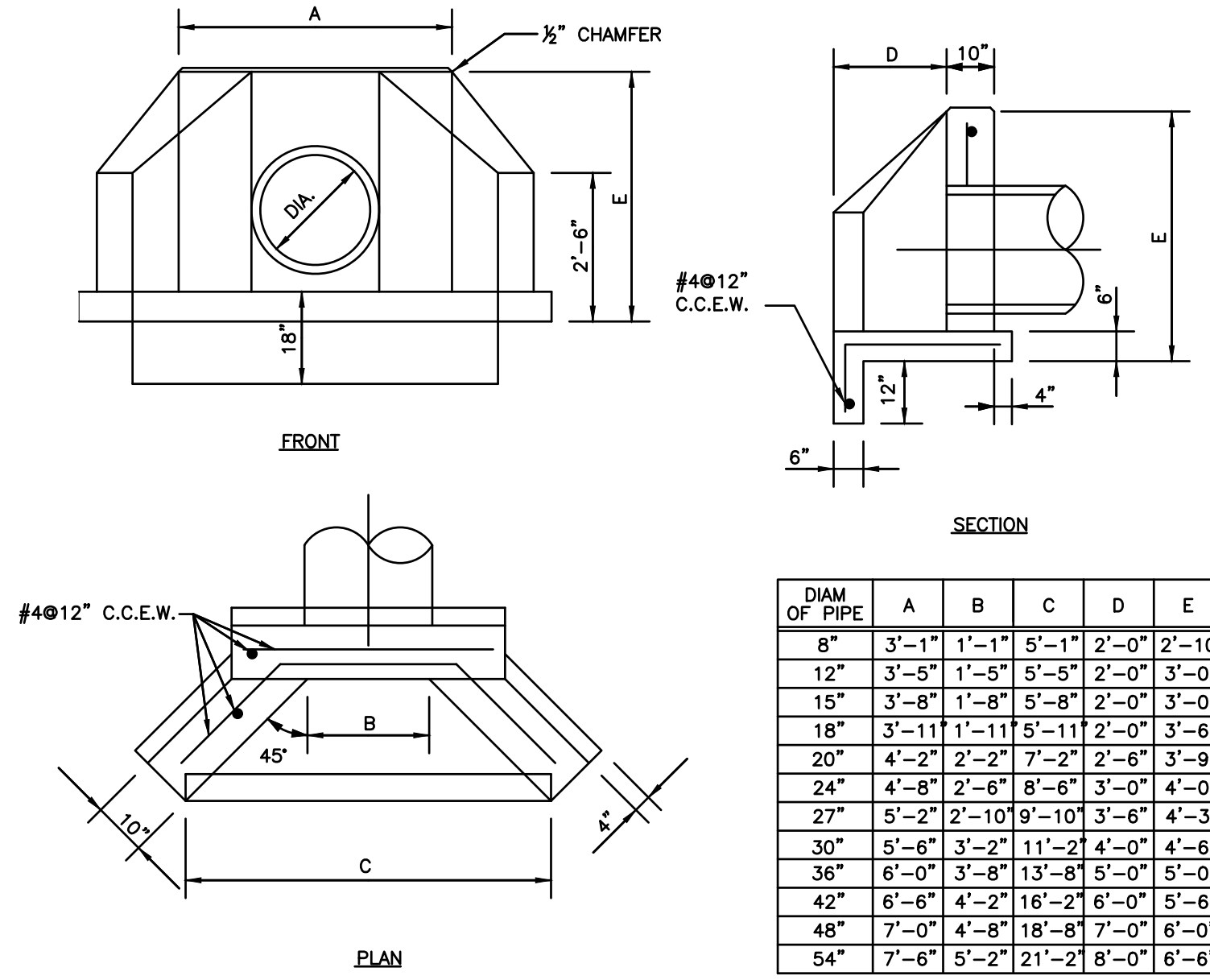
\* TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

**TYPICAL TRENCH CROSS-SECTION**

NOTE: DETAIL FOR ADS N-12 PIPE ONLY. REFER TO MANUFACTURER'S INSTALLATION SPECIFICATIONS FOR OTHER PIPE USED.

**DETAIL 402**  
**TRENCH INSTALLATION**

N.T.S.



DIAM OF PIPE	A	B	C	D	E
8"	3'-1"	1'-1"	5'-1"	2'-0"	2'-10"
12"	3'-5"	1'-5"	5'-5"	2'-0"	3'-0"
15"	3'-8"	1'-8"	5'-8"	2'-0"	3'-0"
18"	3'-11"	1'-11"	5'-11"	2'-0"	3'-6"
20"	4'-2"	2'-2"	7'-2"	2'-6"	3'-9"
24"	4'-8"	2'-6"	8'-6"	3'-0"	4'-0"
27"	5'-2"	2'-10"	9'-10"	3'-6"	4'-3"
30"	5'-6"	3'-2"	11'-2"	4'-0"	4'-6"
36"	6'-0"	3'-8"	13'-8"	5'-0"	5'-0"
42"	6'-6"	4'-2"	16'-2"	6'-0"	5'-6"
48"	7'-0"	4'-8"	18'-8"	7'-0"	6'-0"
54"	7'-6"	5'-2"	21'-2"	8'-0"	6'-6"

**DETAIL 403**  
**PRECAST CONCRETE HEADWALL**

N.T.S.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
1450 OAK RIDGE TURNPIKE,  
OAK RIDGE, TN 37830

**COPE** architecture

Cope Associates, Inc.  
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Knoxville, Tennessee 37919  
tel: 865.694.9000  
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CONSTRUCTION DETAILS

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REVISIONS

NO.	DATE	DESCRIPTION

DATE: 08/27/2021



DWG NO.

**C801**

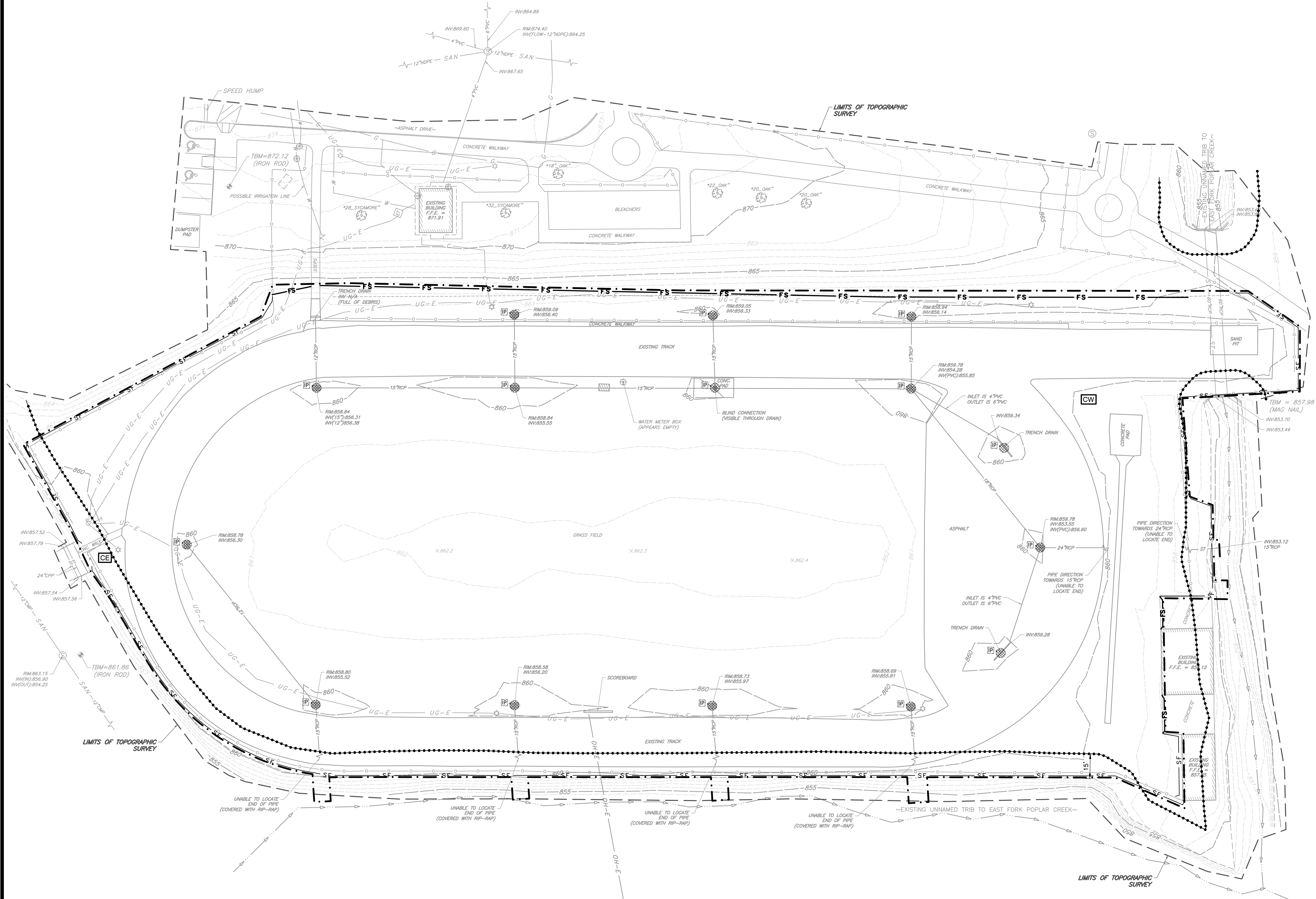
PROJECT NO.

PROJECT NUMBER:

FULL SHEET SIZE: 24"x36"



NORTH



**LEGEND**

	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN06010207026_0100
	EXISTING TOP OF BANK
	EXISTING TOE OF SLOPE
	EXISTING FENCE LINE
	EXISTING CURB
	EXISTING STRUCTURE
	EXISTING STRUCTURE OVERHANG
	EXISTING TREE
	EXISTING STORM CATCH BASIN
	EXISTING WATER METER
	EXISTING SANITARY MANHOLE
	EXISTING GAS METER
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	EXISTING LIGHT POLE
	EXISTING STORM PIPE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING COMMUNICATION LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING OVERHEAD LINE
	PROPOSED LIMITS OF DISTURBANCE
	TYPICAL TDEC CONSTRUCTION BUFFER ZONE NOTE: EXEMPTIONS APPLY BASED ON EXISTING USES (4.1.2.1)
	PROPOSED TEMPORARY FILTER SOCK
	PROPOSED TEMPORARY SILT FENCE
	PROPOSED TEMPORARY INLET PROTECTION
	PROPOSED TEMPORARY CONSTRUCTION EXIT

- REFERENCE**
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- GENERAL NOTES**
- DESCRIPTION OF ALL CONSTRUCTION ACTIVITIES THE PROPOSED PROJECT WILL INVOLVE THE MAINTENANCE RENOVATION CONSTRUCTION ACTIVITIES FOR THE OAK RIDGE HIGH SCHOOL TRACK AREA. CONSTRUCTION ACTIVITIES INCLUDE THE DEMOLITION AND REPLACEMENT/RELOCATING OF THE EXISTING TRACK, FENCING, SITE TRACK ITEMS, AND ASSOCIATED INFRASTRUCTURE.
  - TOTAL SITE AREA: ±6.5 ACRES  
TOTAL DISTURBED AREA: ±4.5 ACRES
  - EXISTING BUFFER ZONE EXEMPTIONS INCLUDE EXEMPTIONS BASED ON EXISTING USES AS NOTED IN CGP SECTION 4.1.2.1. THE USE IN THE BUFFER ZONE HAS EXISTED PRIOR TO THE CGP NOI AND THE CONSTRUCTION ACTIVITIES PROPOSED IN THIS AREA ARE NECESSARY TO MAINTAIN ITS USE. EXTRA CAUTION SHALL BE EXERCISED IN THESE AREAS TO REDUCE DISTURBANCE TO THE MAXIMUM EXTENT PRACTICAL AND STABILIZATION IN THESE AREAS SHOULD BE PROVIDED AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION ACTIVITIES.
  - REMOVE ALL SEDIMENT TRAPPED BY EPSC MEASURES AT OR BEFORE SEDIMENT ACCUMULATION EXCEEDS 50% OF CAPACITY.
  - ALL EPSC MEASURES AND OUTFALLS SHALL BE INSPECTED TWICE WEEKLY AT INTERVALS NO LESS THAN 72 HOURS APART.
  - ALL VEGETATION, AND OTHER EPSC PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED OR MODIFIED WITHIN 7 DAYS OF DISTURBANCE.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
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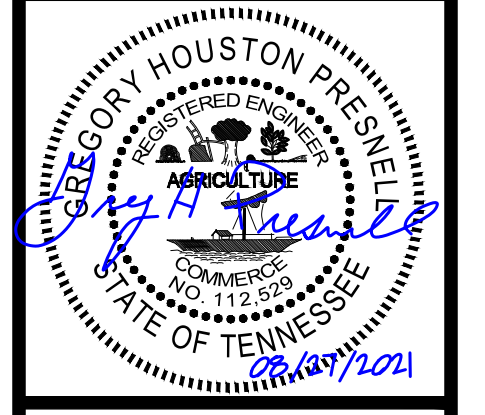
**EROSION PREVENTION AND SEDIMENT CONTROL PLAN INITIAL PHASE**

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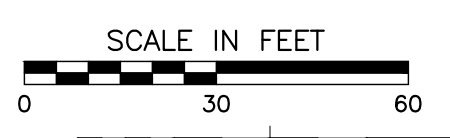
**REVISIONS**

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

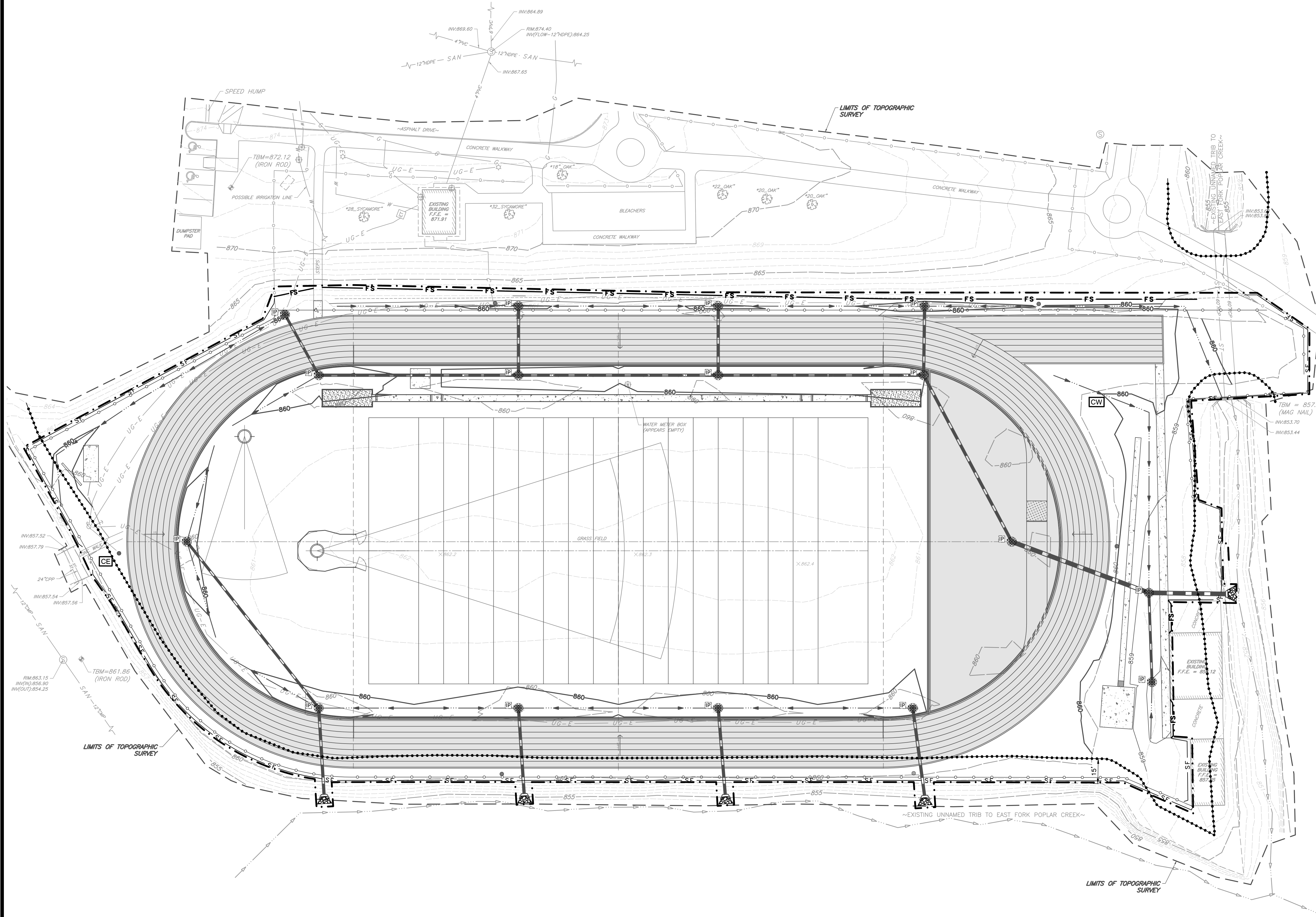


DWG NO. **C900**  
PROJECT NO. PROJECT NUMBER:  
FULL SHEET SIZE: 24"x36"





NORTH



- LEGEND**
- 860 --- EXISTING INDEX (MAJOR) CONTOUR
  - 859 --- EXISTING INTERMEDIATE (MINOR) CONTOUR
  - - - - - EXISTING APPROXIMATE CENTERLINE OF TDEC STREAM: TN060102070208\_0100
  - - - - - EXISTING TOP OF BANK
  - - - - - EXISTING TOE OF SLOPE
  - - - - - EXISTING FENCE LINE
  - - - - - EXISTING CURB
  - [Hatched Box] EXISTING STRUCTURE
  - [Hatched Box] EXISTING STRUCTURE OVERHANG
  - [Tree Symbol] EXISTING TREE
  - [Square with X] EXISTING STORM CATCH BASIN
  - [Circle with X] EXISTING WATER METER
  - [Circle with X] EXISTING SANITARY MANHOLE
  - [Circle with X] EXISTING GAS METER
  - [Square with X] EXISTING ELECTRIC TRANSFORMER & METER
  - [Circle with X] EXISTING POWER POLE & GUY ANCHOR
  - [Star] EXISTING LIGHT POLE
  - - - - - EXISTING STORM PIPE
  - - - - - EXISTING WATER LINE
  - - - - - EXISTING SANITARY SEWER LINE
  - - - - - EXISTING GAS LINE
  - - - - - EXISTING COMMUNICATION LINE
  - - - - - EXISTING UNDERGROUND ELECTRIC LINE
  - [Hatched Box] PROPOSED CONCRETE
  - [Dashed Line] PROPOSED FENCE
  - [Circle] PROPOSED FIELD LIGHT
  - 860 --- PROPOSED INDEX (MAJOR) CONTOUR
  - 859 --- PROPOSED INTERMEDIATE (MINOR) CONTOUR
  - --- PROPOSED SPOT ELEVATION
  - - - - - PROPOSED DITCH SLOPE TO DRAIN
  - - - - - PROPOSED STORM PIPE
  - - - - - PROPOSED YARD DRAIN
  - - - - - PROPOSED YARD DRAIN
  - - - - - PROPOSED HEADWALL
  - - - - - PROPOSED LIMITS OF DISTURBANCE
  - - - - - TYPICAL TDEC CONSTRUCTION BUFFER ZONE NOTE: EXEMPTIONS APPLY BASED ON EXISTING USES (4.1.2.1)
  - - - - - PROPOSED TEMPORARY FILTER SOCK
  - - - - - PROPOSED TEMPORARY SILT FENCE
  - [IP] PROPOSED TEMPORARY INLET PROTECTION
  - [CE] PROPOSED TEMPORARY CONSTRUCTION EXIT
  - [CW] PROPOSED TEMPORARY CONCRETE WASHOUT
  - [Riprap Symbol] PROPOSED PERMANENT RIPRAP OUTLET

- REFERENCE**
- COORDINATE REFERENCE: TENNESSEE STATE PLANE NAD83. ELEVATIONS SHOWN BASED ON NAVD83 DATUM.
  - TOPOGRAPHIC & SURVEY INFORMATION PREPARED BY CEC, DATED JULY 2021.
  - THE PROJECT AREA SHOWN ON THIS PLAN FOR DEVELOPMENT LIES IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS REFERENCED ON FEMA FIRM MAP# 47001C0219F WITH AN EFFECTIVE DATE OF 01/17/2007.
  - CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
  - ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.

- GENERAL NOTES**
- DESCRIPTION OF ALL CONSTRUCTION ACTIVITIES THE PROPOSED PROJECT WILL INVOLVE THE MAINTENANCE RENOVATION CONSTRUCTION ACTIVITIES FOR THE OAK RIDGE HIGH SCHOOL TRACK AREA. CONSTRUCTION ACTIVITIES INCLUDE THE DEMOLITION AND REPLACEMENT/RELOCATING OF THE EXISTING TRACK, FENCING, SITE TRACK ITEMS, AND ASSOCIATED INFRASTRUCTURE.
  - TOTAL SITE AREA: ±6.5 ACRES  
TOTAL DISTURBED AREA: ±4.5 ACRES
  - EXISTING BUFFER ZONE EXEMPTIONS INCLUDE EXEMPTIONS BASED ON EXISTING USES AS NOTED IN COP SECTION 4.1.2.1. THE USE IN THE BUFFER ZONE HAS EXISTED PRIOR TO THE COP NOI AND THE CONSTRUCTION ACTIVITIES PROPOSED IN THIS AREA ARE NECESSARY TO MAINTAIN ITS USE. EXTRA CAUTION SHALL BE EXERCISED IN THESE AREAS TO REDUCE DISTURBANCE TO THE MAXIMUM EXTENT PRACTICAL AND STABILIZATION IN THESE AREAS SHOULD BE PROVIDED AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION ACTIVITIES.
  - REMOVE ALL SEDIMENT TRAPPED BY EPSC MEASURES AT OR BEFORE SEDIMENT ACCUMULATION EXCEEDS 50% OF CAPACITY.
  - ALL EPSC MEASURES AND OUTFALLS SHALL BE INSPECTED TWICE WEEKLY AT INTERVALS NO LESS THAN 72 HOURS APART.
  - ALL VEGETATION, AND OTHER EPSC PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED OR MODIFIED WITHIN 7 DAYS OF DISTURBANCE.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
1450 OAK RIDGE TURNPIKE,  
OAK RIDGE, TN 37830

**COPE** architecture  
Cope Associates, Inc. Suite 5  
2807 Kingston Pike, Knoxville, Tennessee 37919  
tel: 865.694.9000  
www.copearchitecture.com

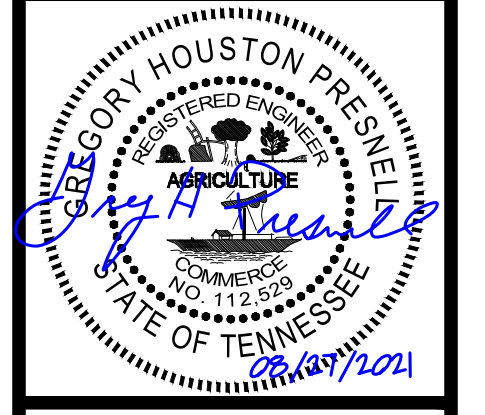
**EROSION PREVENTION AND  
SEDIMENT CONTROL PLAN  
CONSTRUCTION PHASE**

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REVISIONS

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

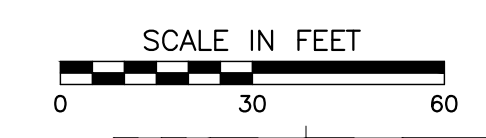


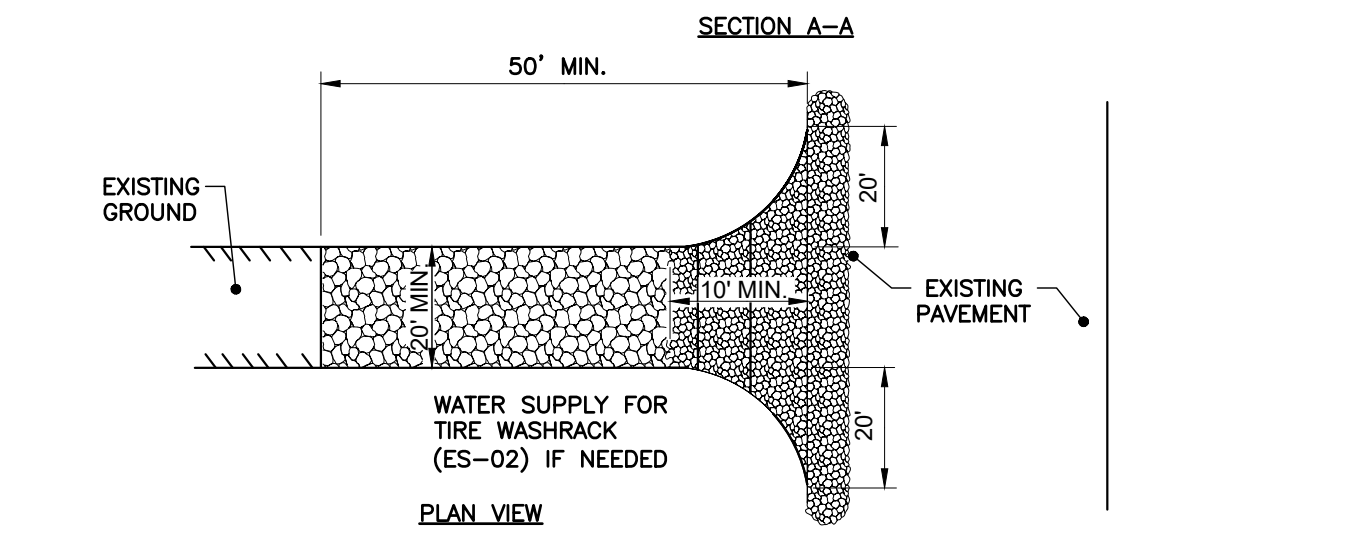
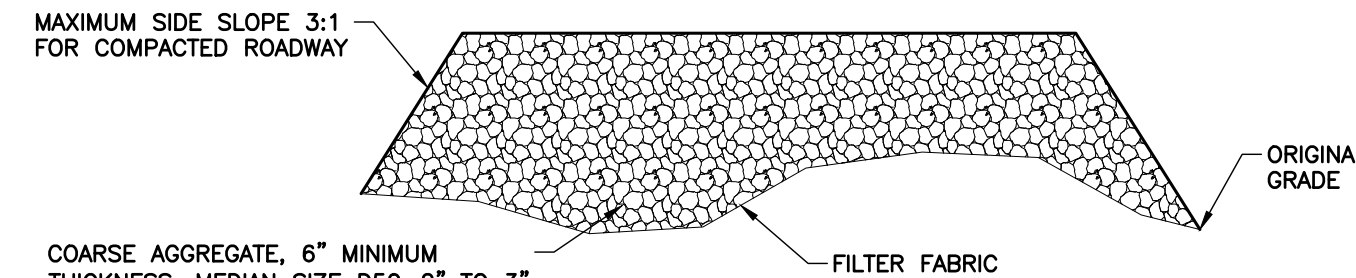
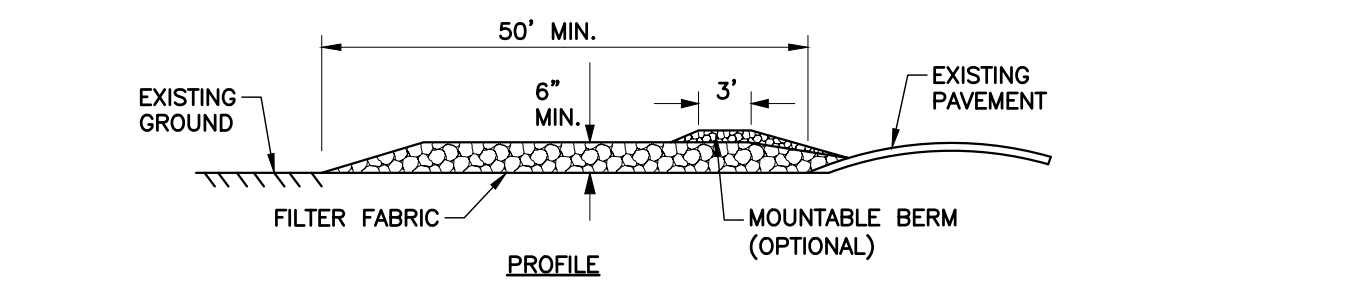
DWG NO.

**C901**

PROJECT NO.

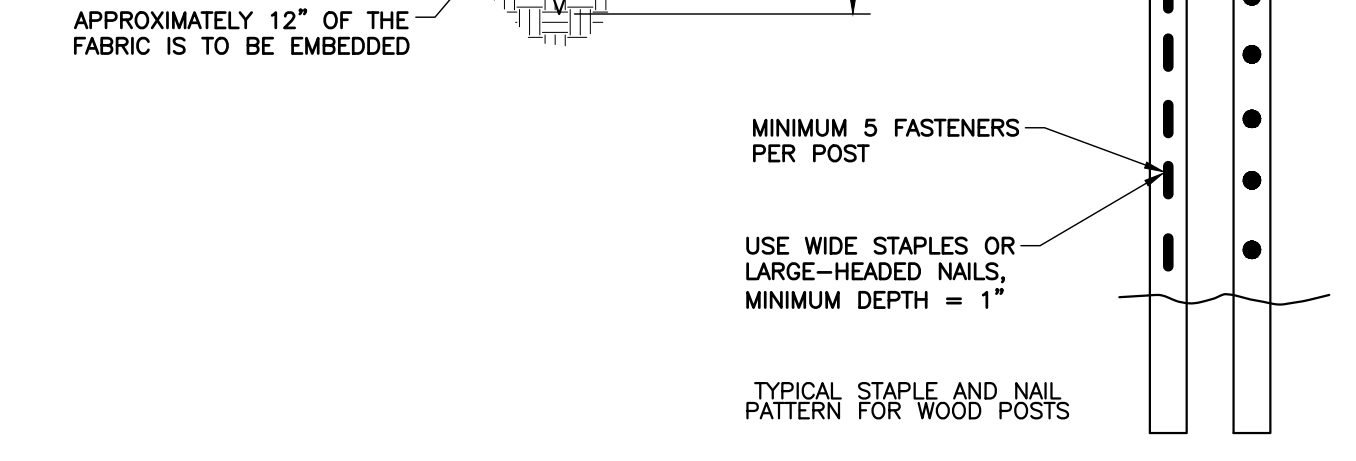
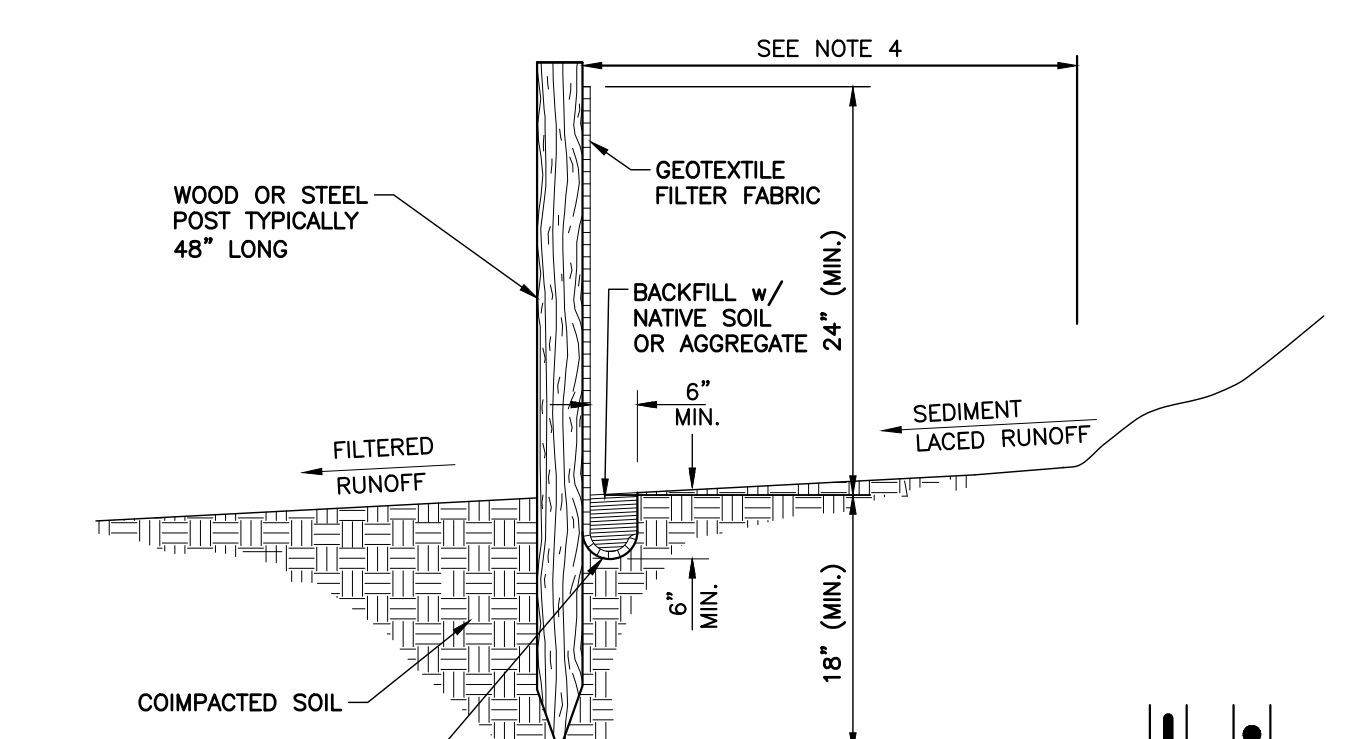
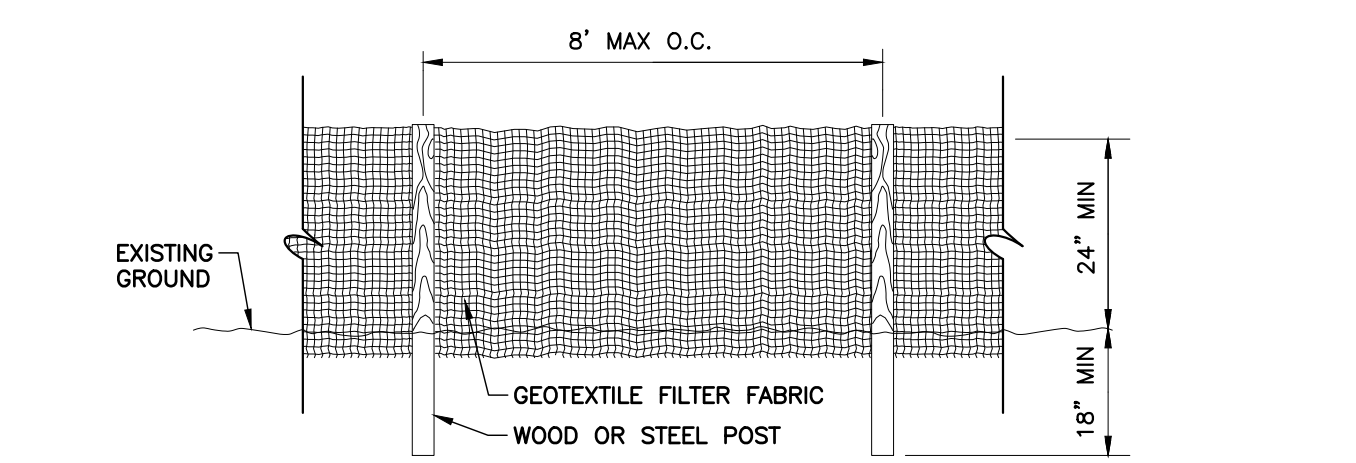
PROJECT NUMBER:  
FULL SHEET SIZE: 24"x36"





- CONSTRUCTION SPECIFICATIONS**
1. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
  2. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
  3. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE IT INGRESS OR EGRESS OCCURS OR 20 FEET, WHICH EVER IS GREATER.
  4. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
  5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
  6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

**DETAIL 901  
CONSTRUCTION EXIT**  
N.T.S. CE



- NOTES:**
1. FILTER CLOTH SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATION FOR GEOTEXTILES AASHTO DESIGNATION: M268, SEDIMENT CONTROL, SELF SUPPORTED.
  2. WOOD POSTS ARE TYPICALLY 2"x2" OAK AND OTHER HARD WOODS. A LARGER POST IS NECESSARY FOR SOFT WOODS (4"x4").
  3. FASTENERS FOR WOOD POSTS SHOULD BE EITHER WIRE STAPLES OR NAILS. THERE SHALL BE A MINIMUM OF 5 FASTENERS FOR EACH WOOD POST. USE MINIMUM SIZE 17-GAUGE STAPLES WITH A MINIMUM EMBEDDED LENGTH OF 1 INCH INTO THE WOOD AND A MINIMUM WIDTH OF 3/4 INCH ACROSS. TYPICAL NAIL SIZE IS 1 INCH LONG WITH OVERSIZED NAIL HEAD. FABRIC SHALL NOT BE ATTACHED TO EXISTING TREES.
  4. PLACE SILT FENCE AT LEAST 5 TO 7 FEET AWAY FROM STEEP OR LONG SLOPES TO IMPOUND STORMWATER RUNOFF.

**DETAIL 902  
SILT FENCE**  
N.T.S. SF

**PERMANENT SEEDING MIXTURES**

SEEDING DATES	GRASS SEED	PERCENTAGES
FEBRUARY 1 TO JULY 1	KENTUCKY 31 FESCUE	88%
	ENGLISH RYE	12%
	KENTUCKY 31 FESCUE	60%
JUNE 1 TO AUGUST 15	ENGLISH RYE	25%
	GERMAN MILLET	15%
	KENTUCKY 31 FESCUE	70%
AUGUST 1 TO DECEMBER 1	ENGLISH RYE	20%
	WHITE CLOVER	10%
	KENTUCKY 31 FESCUE	83%
DECEMBER 1 TO FEBRUARY 1	ENGLISH RYE	17%

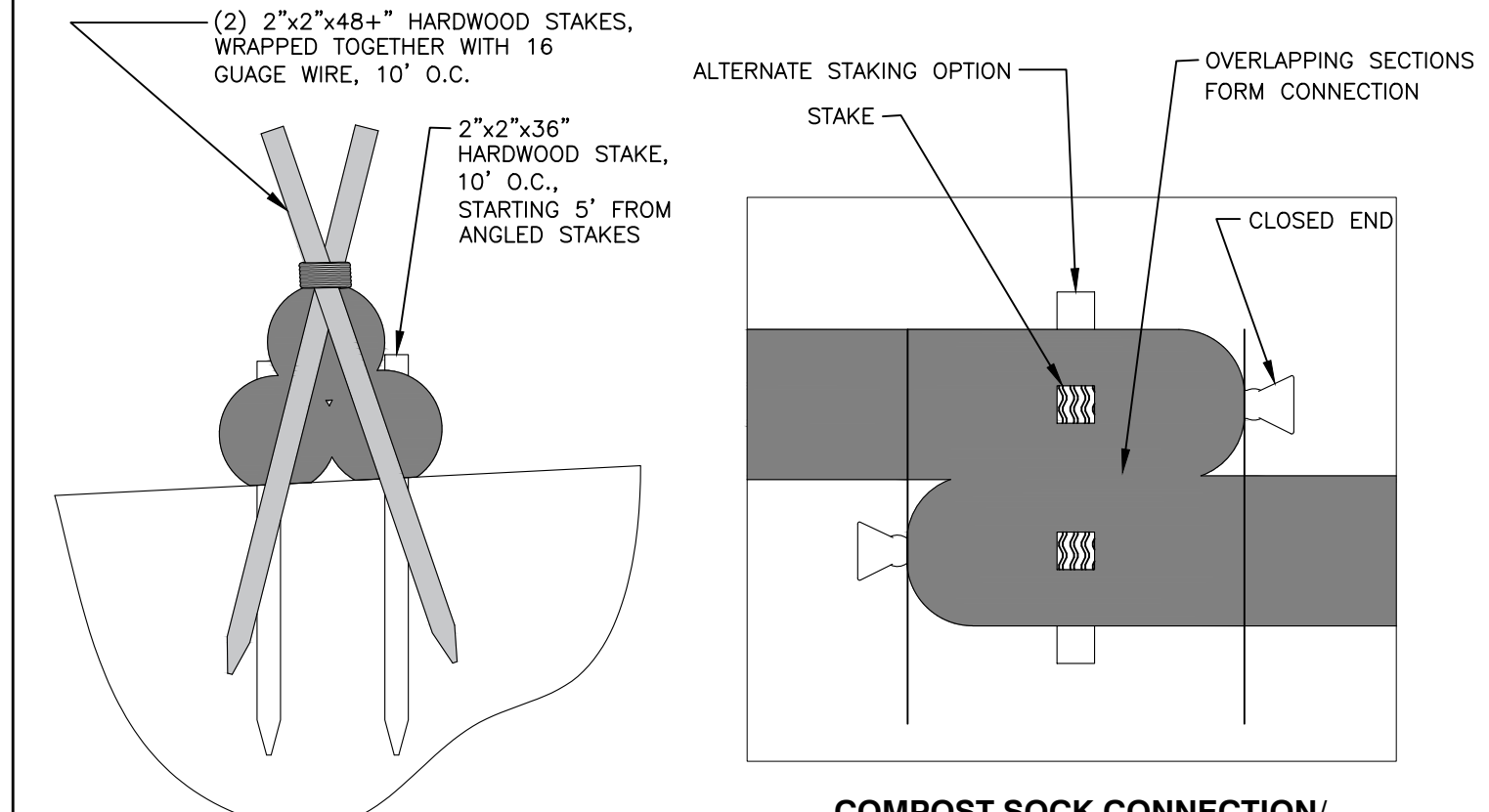
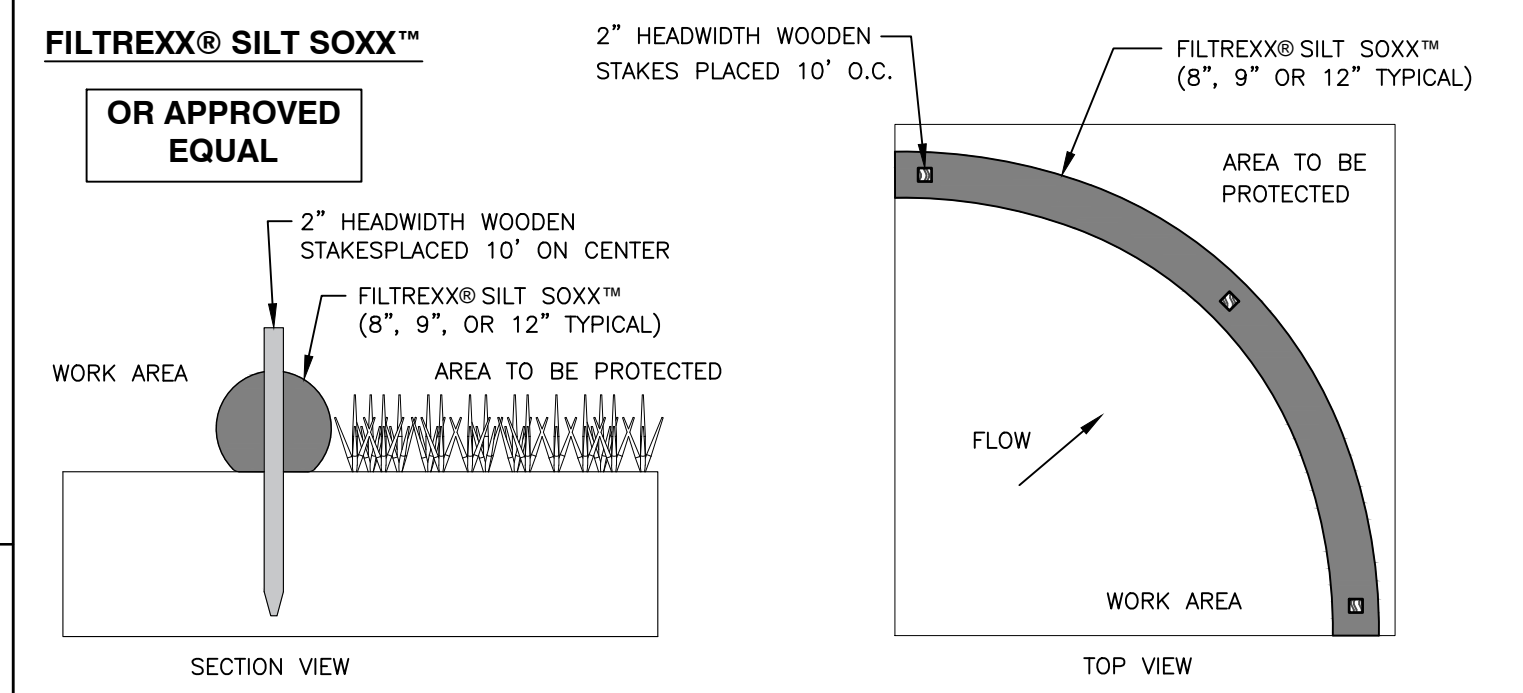
SOURCE: TxDOT STANDARDS SPECIFICATIONS

**TEMPORARY SEEDING MIXTURES**

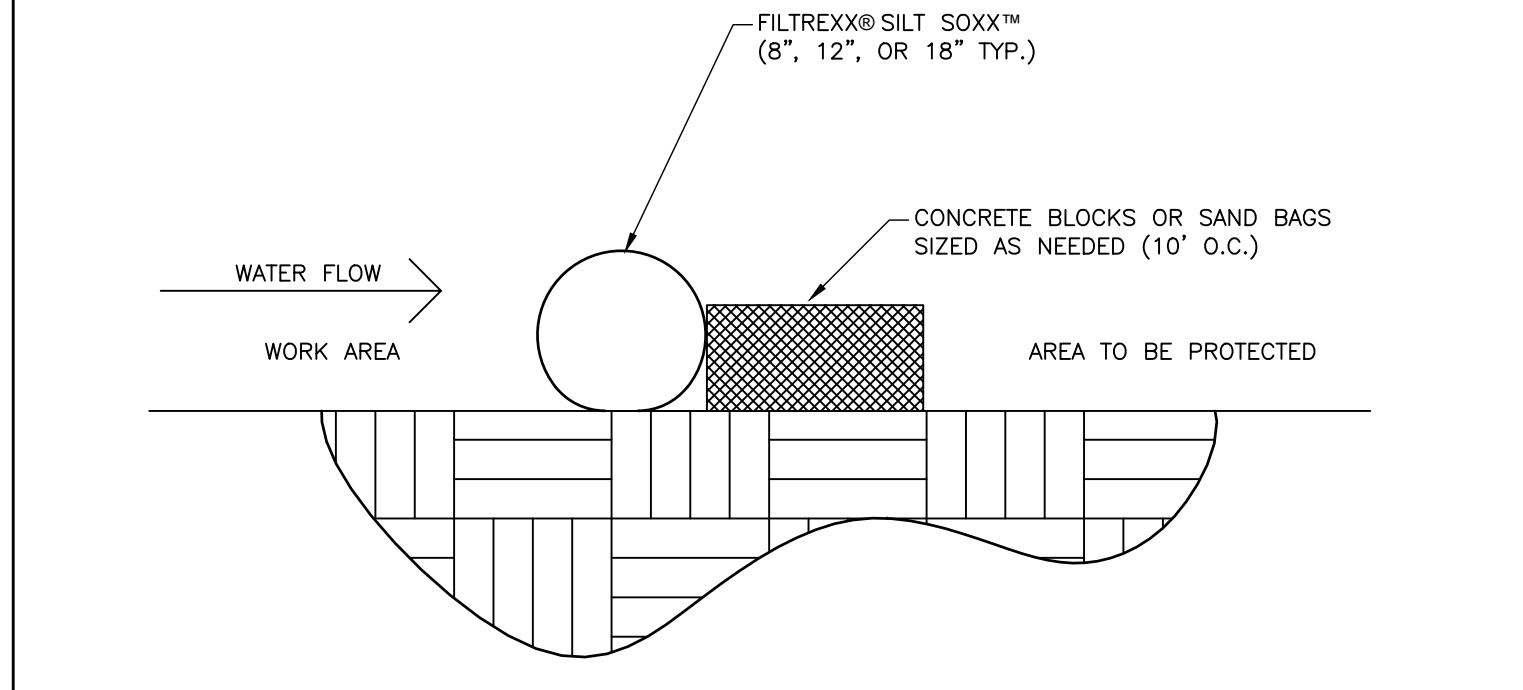
SEEDING DATES	GRASS SEED	PERCENTAGES
JANUARY 1 TO MAY 1	ITALIAN RYE	50%
	SUMMER OATS	50%
MAY 1 TO JULY 15	SUDAN-SORGHUM	100%
MAY 1 TO JULY 15	STARR MILLET	100%
JULY 15 TO JANUARY 1	BALBOA RYE	67%
	ITALIAN RYE	33%

SOURCE: TxDOT STANDARDS SPECIFICATIONS

**DETAIL 903  
SEEDING SCHEDULE**  
N.T.S.

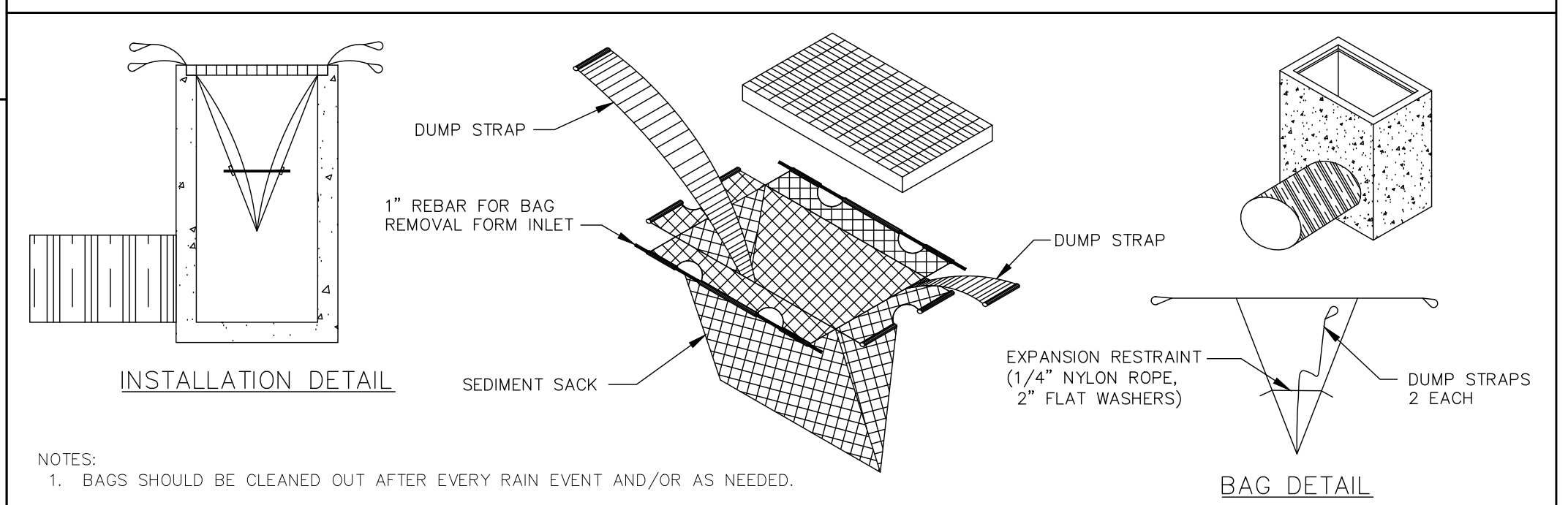
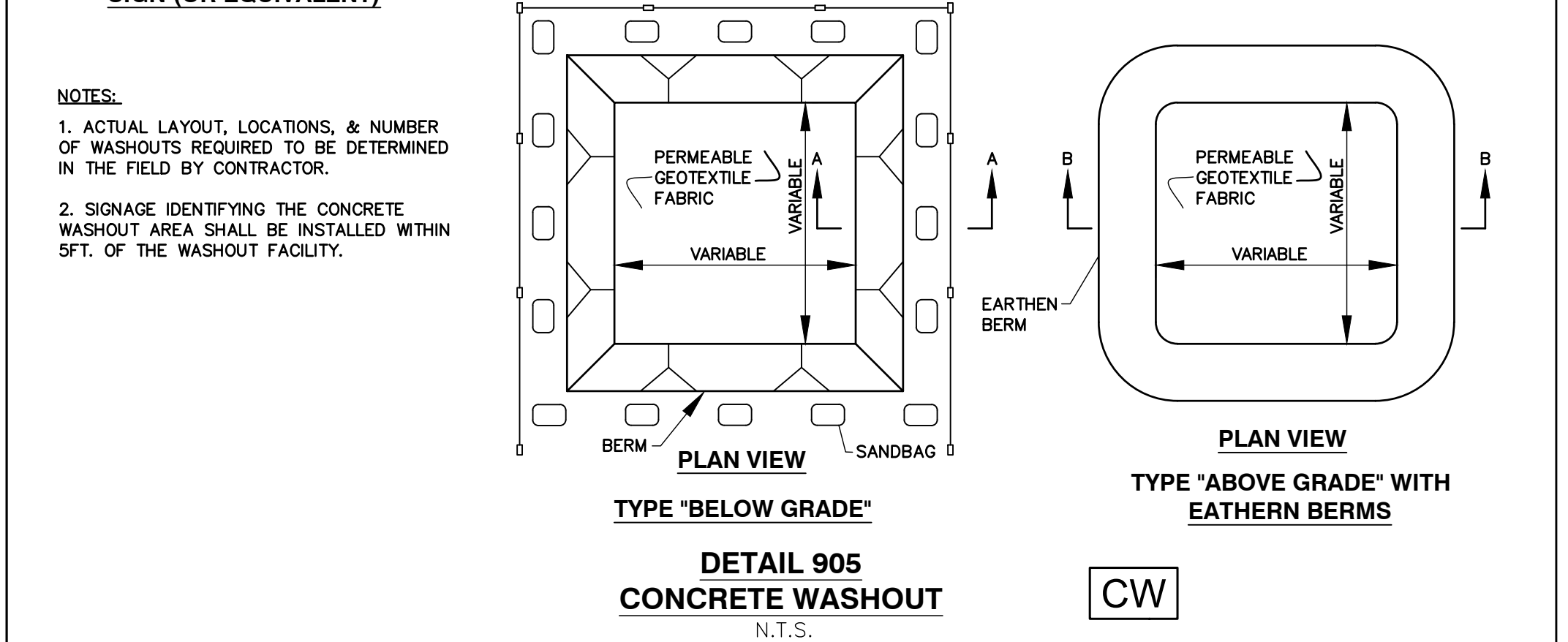
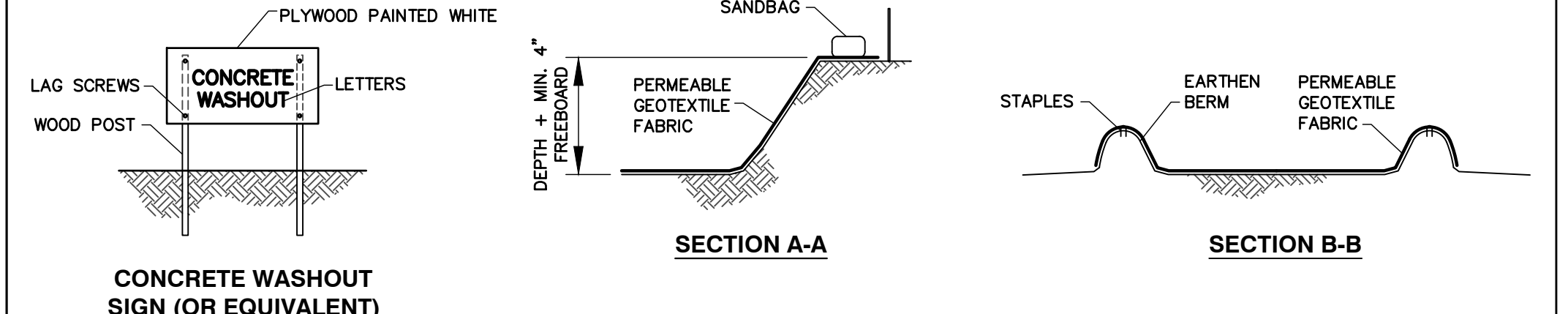


- FILTREXX® PYRAMID STAKING DETAIL**
- COMPOST SOCK CONNECTION/ ATTACHMENT DETAIL**
- NOTES:**
1. ALL MATERIALS TO MEET FILTREXX® SPECIFICATIONS OR TDEC SPECIFICATIONS.
  2. SILT SOCK™ FILL TO MEET APPLICATION REQUIREMENTS.
  3. FILTER MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



**SECTION ON PAVEMENT INSTALLATION**  
N.T.S.

**DETAIL 904  
FILTER SOCK IN GROUND OR ON PAVEMENT**  
N.T.S. FS



**DETAIL 906  
SILT BAG INLET PROTECTION DETAIL**  
N.T.S.

**EROSION AND SEDIMENT CONTROL NOTES:**

1. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON PROJECT SITE. THIS INDIVIDUAL MUST HAVE COMPLETED THE "FUNDAMENTALS OF EROSION PREVENTION AND SEDIMENT CONTROL" COURSE OR AN EQUIVALENT COURSE.
2. REFER TO THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK FOR DESIGN CRITERIA AND GUIDELINES FOR EROSION CONTROL MEASURES.
3. CLEARING AND GRUBBING MUST BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.
4. CONSTRUCTION MUST BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF CLEARED SURFACE AREA.
5. CONSTRUCTION STAGING AND PHASING IS CRITICAL TO REDUCING SEDIMENT RUNOFF FROM SITE.
6. EROSION CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN, AND MUST BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
7. ALL EROSION CONTROL MEASURES SHALL BE CHECKED TWICE WEEKLY AND AFTER EACH RAINFALL. CHECK DAILY DURING PROLONGED RAINFALL.
8. CONSTRUCTION DEBRIS MUST BE KEPT FROM ENTERING THE STORM MANAGEMENT SYSTEM.
9. STOCKPILED SOIL SHALL BE PROTECTED AND LOCATED FAR ENOUGH FROM STREAMS AND DRAINAGEWAYS SO THAT RUNOFF CANNOT CARRY SEDIMENT DOWNSTREAM.
10. VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 10 CALENDAR DAYS PRIOR TO GRADING.
11. TEMPORARY SOIL STABILIZATION WITH APPROPRIATE ANNUAL VEGETATION IS REQUIRED WHEN GRADING OPERATIONS ARE TEMPORARILY HALTED FOR OVER 14 DAYS AND ON SOIL STOCKPILES.
12. PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION IS REQUIRED WHEN GRADING OPERATIONS ARE COMPLETE AND/OR CONSTRUCTION OPERATIONS WILL NOT IMPACT THE DISTURBED AREA. CONTRACTOR SHALL INSPECT THE SITE PERIODICALLY TO REPAIR AND RE-ESTABLISH VEGETATION TO DAMAGED AREAS.
13. STAKED AND ENTRENCHED SILT FENCE MUST BE INSTALLED ALONG THE BASE OF ALL FILLS AND CUTS, ON THE DOWNHILL SIDES OF STOCKPILED SOIL, AND ALONG STREAM BANKS IN CLEARED AREAS TO PREVENT EROSION INTO STREAMS. SILT FENCE MAY BE REMOVED AT THE BEGINNING OF THE WORK DAY, BUT MUST BE REPLACED AT THE END OF THE WORK DAY OR PRIOR TO FORECASTING RAIN EVENTS.
14. WHERE APPROPRIATE, SURFACE WATER FLOWING TOWARD CONSTRUCTION AREA SHALL BE DIVERTED AROUND THE CONSTRUCTION AREA USING DIKES, TO REDUCE EROSION POTENTIAL.
15. ALL ROCK SHALL BE CLEAN, HARD ROCK CONTAINING NO SAND, DUST, OR ORGANIC MATERIAL.
16. CONTRACTOR SHALL MAINTAIN SILT FENCES AND OTHER EROSION CONTROL DEVICES FOR THE DURATION OF THE PROJECT, TO ENSURE EFFECTIVENESS, UNTIL ACCEPTED BY THE OWNER, AT NO ADDITIONAL EXPENSE TO THE OWNER. IF CONSTRUCTION ACTIVITIES CEASE DUE TO WEATHER RELATED CAUSES, THEN THE CONTRACTOR WILL ENSURE THAT THE SITE IS PROPERLY STABILIZED AND ALL EROSION CONTROL DEVICES ARE MAINTAINED AND FUNCTIONAL DURING THOSE PERIODS OF INACTIVITY.
17. CONSTRUCTION EXIT - CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION EXIT PRIOR TO ANY EARTHWORK OPERATIONS. CONSTRUCTION EXIT SHALL BE LOCATED AS SHOWN. CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD TO PUBLIC RIGHTS-OF-WAYS. ALL MATERIAL SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES OR SITE ONTO ADJACENT ROADWAYS SHALL BE REMOVED IMMEDIATELY FROM THE ROADWAY.
18. CONTRACTOR IS RESPONSIBLE FOR CLEANING OUT AND PROPER DISPOSAL OF ALL DEBRIS WITHIN THE STORM DRAINAGE STRUCTURES, INCLUDING SILT FROM FLUMES, PIPES, ECT., PRIOR TO COMPLETION OF THE PROJECT.
19. MEASURES SHOWN FOR SEDIMENT AND EROSION CONTROL REPRESENT THE MINIMUM ANTICIPATED. ADDITIONAL PROTECTION SHALL BE PROVIDED AS NECESSARY THAT WILL PREVENT SEDIMENT FROM LEAVING THE SITE DUE TO UNFORESEEN CONDITIONS OR ACCIDENTS.
20. THE GRADING CONTRACTOR AND BUILDING CONTRACTOR WILL REFRAIN FROM DOING ANY WORK OUTSIDE OF THE DELINEATED LIMITS OF DISTURBANCE.
21. ROADS SHALL BE STABILIZED BY APPLYING STONE ONCE SUBGRADE ELEVATION IS ACHIEVED.
22. ALL SILT FENCE IS TO BE TYPE A EXCEPT WHERE SPECIFIED DIFFERENTLY.
23. EROSION CONTROL MATTING TO BE JUTE MESH (OR APPROVED EQUAL) AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

Cope architecture  
 Cope Associates, Inc. Suite 5  
 2607 Kingston Pike, Knoxville, Tennessee 37919  
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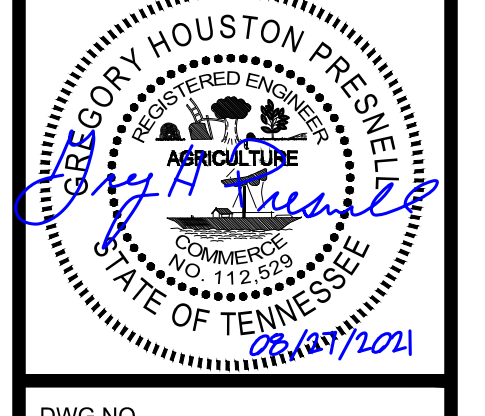
EPSC DETAILS

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**REVISIONS**

NO.	DATE	DESCRIPTION

DATE: 08/27/2021

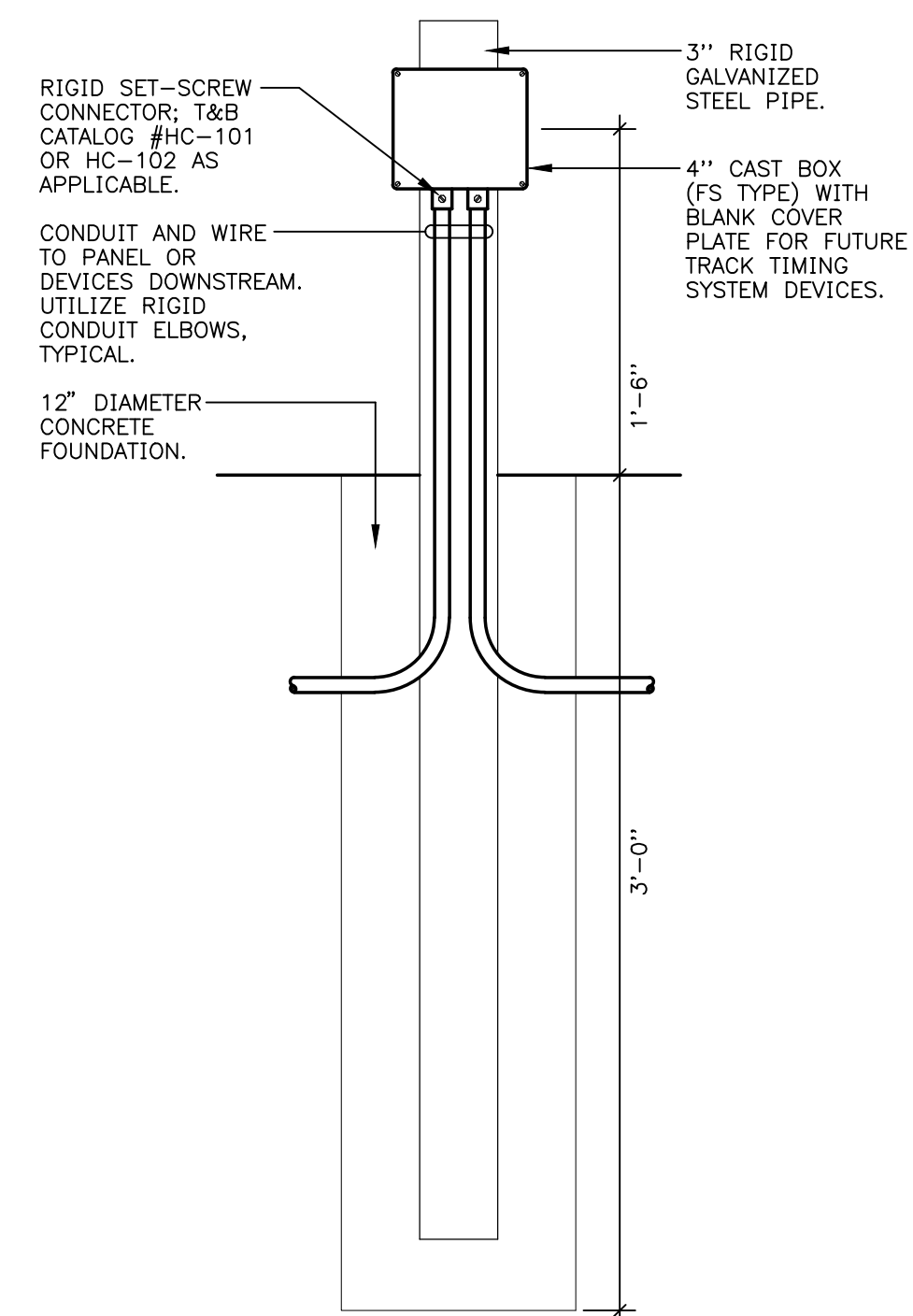
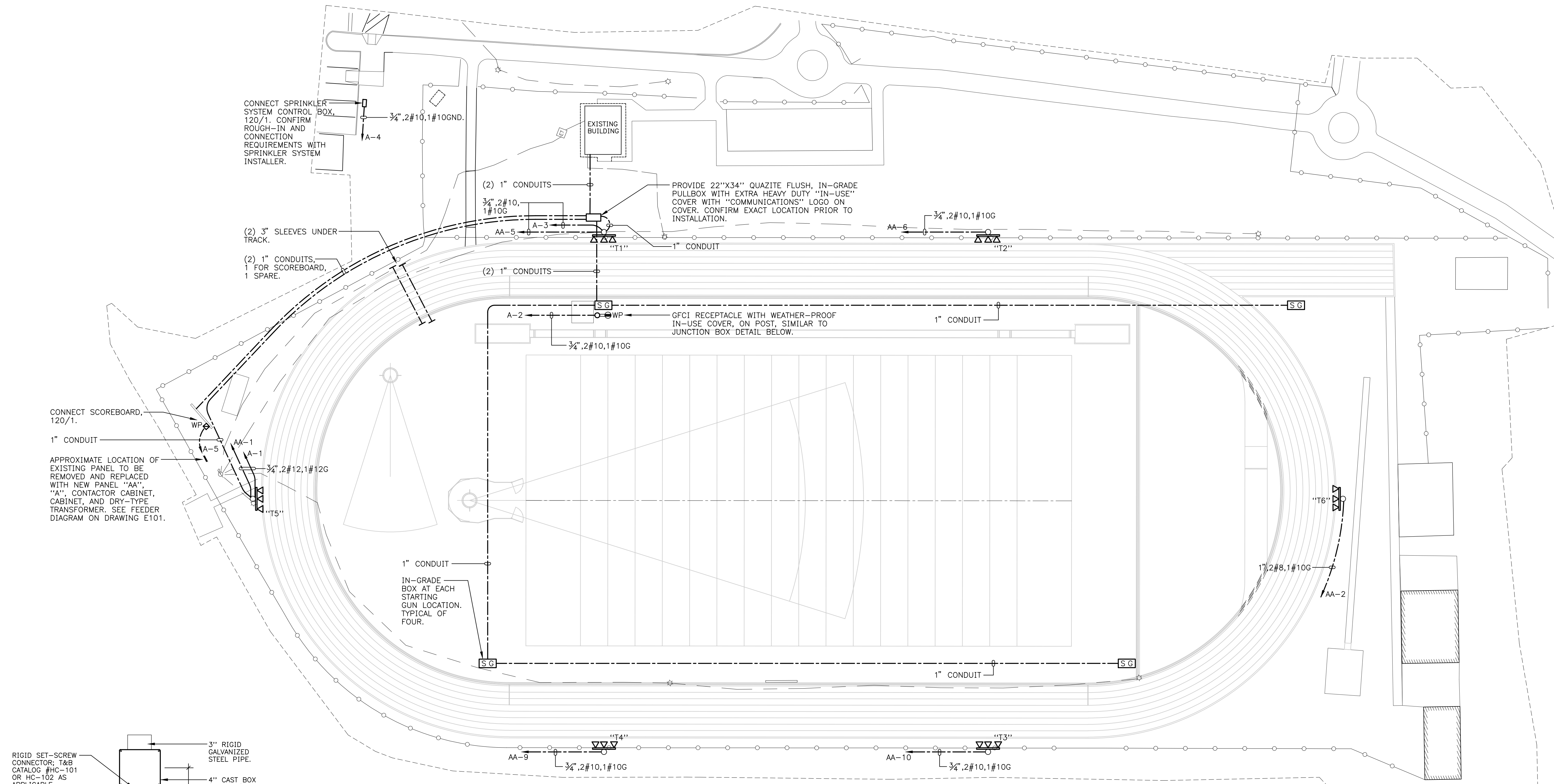


DWG NO. **C902**

PROJECT NO. \_\_\_\_\_ PROJECT NUMBER: \_\_\_\_\_

FULL SHEET SIZE: 24"x36"

E100 - ORHS Ben Martin Track Lighting - Site Plan - Track Lighting.dwg  
 A.L.S. 09/08/21 11:49 AM RDZ1235(IND)

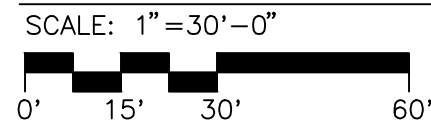


**JUNCTION BOX DETAIL**  
 NO SCALE SYMBOL: [S G]

**GENERAL NOTES:**

- ALL UNDERGROUND WIRING ROUTINGS, POLE LOCATIONS, TRANSFORMER LOCATIONS, ETC., SHOWN ON THIS DRAWING ARE DIAGNOSTIC ONLY. CONFIRM EXACT LOCATIONS OF ALL UNDERGROUND WIRING AND OTHER EQUIPMENT WITH OTHER TRADES AS REQUIRED PRIOR TO ROUGH-IN.
- REMOVE ALL EXISTING TRACK LIGHTING POLES AND ASSOCIATED WIRING. FURNISH AND INSTALL NEW POLES, LUMINAIRES, AND WIRING AS INDICATED.

**SITE PLAN - TRACK LIGHTING/IN-GRADE ELECTRICAL**



Pole / Fixture Summary					
Pole ID	Pole Height	Fixture Qty	Luminaire Type	Load	Circuit
T1	60'	4	TLC-LED-1200	4.7KW	AA-5
T2	60'	4	TLC-LED-1200	4.7KW	AA-6
T3	60'	4	TLC-LED-1200	4.7KW	AA-10
T4	60'	4	TLC-LED-1200	4.7KW	AA-9
T5	60'	3	TLC-LED-1200	3.5KW	AA-1
T6	60'	5	(3)TLC-LED-1200; (2)TLC-LED-1500	6.5KW	AA-2

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	22
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	2

**NOTE:**

- SCHEDULES ABOVE ARE FOR FIELD LIGHTING SYSTEM FOR TRACK. REFER TO THIS DRAWING, DRAWING E101, AND PROJECT MANUAL, FOR ADDITIONAL INFORMATION.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

**COPE** architecture  
 Cope Associates, Inc. Suite 5  
 2607 Kingston Pike, Knoxville, Tennessee 37919  
 Tel: 865.694.9000  
 www.copearchitecture.com

**SITE PLAN - TRACK LIGHTING/  
 IN-GRADE ELECTRICAL**

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REVISIONS		
NO.	DATE	DESCRIPTION

DATE: 08-27-2021



DWG NO.

**E100**

PROJECT NO.

**Vreeland Engineers Inc.**  
  
 3107 Sutherland Ave.  
 P.O. Box 10648  
 Knoxville, TN 37939  
 865-637-4451  
 1-800-362-9789  
 vreelandengineers.com



PANEL	CTK. NO.	SERVES	LOAD (kVA)		BREAKER		BREAKER		LOAD (kVA)		SERVES	CTK. NO.	
			#A	#B	TRIP POLE	POLE TRIP	#A	#B					
AA	1	"T5" POLE LIGHTING	1.8		20	2	2	30	3.3		"T6" POLE LIGHTING	2	
	3		1.8		1				3.3			4	
	5	"T1" POLE LIGHTING	2.4		20	2	2	20	2.4		"T2" POLE LIGHTING	6	
	7		2.4		1		1		2.4			8	
	9	"T4" POLE LIGHTING	2.4		20	2	2	20	2.4		"T3" POLE LIGHTING	10	
	11		2.4		1		1		2.4			12	
	13	TRANSFORMER (PANEL "A")	5.0		70	2	1				SPACE ONLY	14	
	15		5.0		1		1				SPACE ONLY	16	
	17	SPACE ONLY					1				SPACE ONLY	18	
	19	SPACE ONLY					1				SPACE ONLY	20	
	21	SPACE ONLY					1				SPACE ONLY	22	
	23	SPACE ONLY					1				SPACE ONLY	24	
	SUB TOTAL CONNECTED			11.6	11.6					8.1	8.1	SUB TOTAL CONNECTED	
	SUB TOTAL CONNECTED #A:			19.7		SUB TOTAL CONNECTED #B:		19.7		TOTAL CONNECTED: 39.4			

NOTES:  
 1. PROVIDE NEMA 3R ENCLOSURE.

PANEL	CTK. NO.	SERVES	LOAD (kVA)		BREAKER		BREAKER		LOAD (kVA)		SERVES	CTK. NO.	
			#A	#B	TRIP POLE	POLE TRIP	#A	#B					
A	1	"T1" POLE 120-VOLT	0.5		20	1	1	20	0.4		SCORING PAD RECEPTACLE	2	
	3	"T5" POLE 120-VOLT	0.5		20	1	1	20	0.5		SPRINKLER CONTROL BOX	4	
	5	SCOREBOARD	0.5		20	1	1	20			SPARE	6	
	7	LIGHTING CONTACTOR CONTROLS	0.2		20	1	1	20			SPARE	8	
	9	SPARE			20	1	1	20			SPARE	10	
	11	SPARE			20	1	1	20			SPARE	12	
	13	SPACE ONLY					1				SPACE ONLY	14	
	15	SPACE ONLY					1				SPACE ONLY	16	
	17	SPACE ONLY					1				SPACE ONLY	18	
	19	SPACE ONLY					1				SPACE ONLY	20	
	21	SPACE ONLY					1				SPACE ONLY	22	
	23	SPACE ONLY					1				SPACE ONLY	24	
	SUB TOTAL CONNECTED			1.0	0.7					0.4	0.5	SUB TOTAL CONNECTED	
	SUB TOTAL CONNECTED #A:			1.4		SUB TOTAL CONNECTED #B:		1.2		TOTAL CONNECTED: 2.6			

NOTES:  
 1. PROVIDE NEMA 3R ENCLOSURE.

## LEGEND

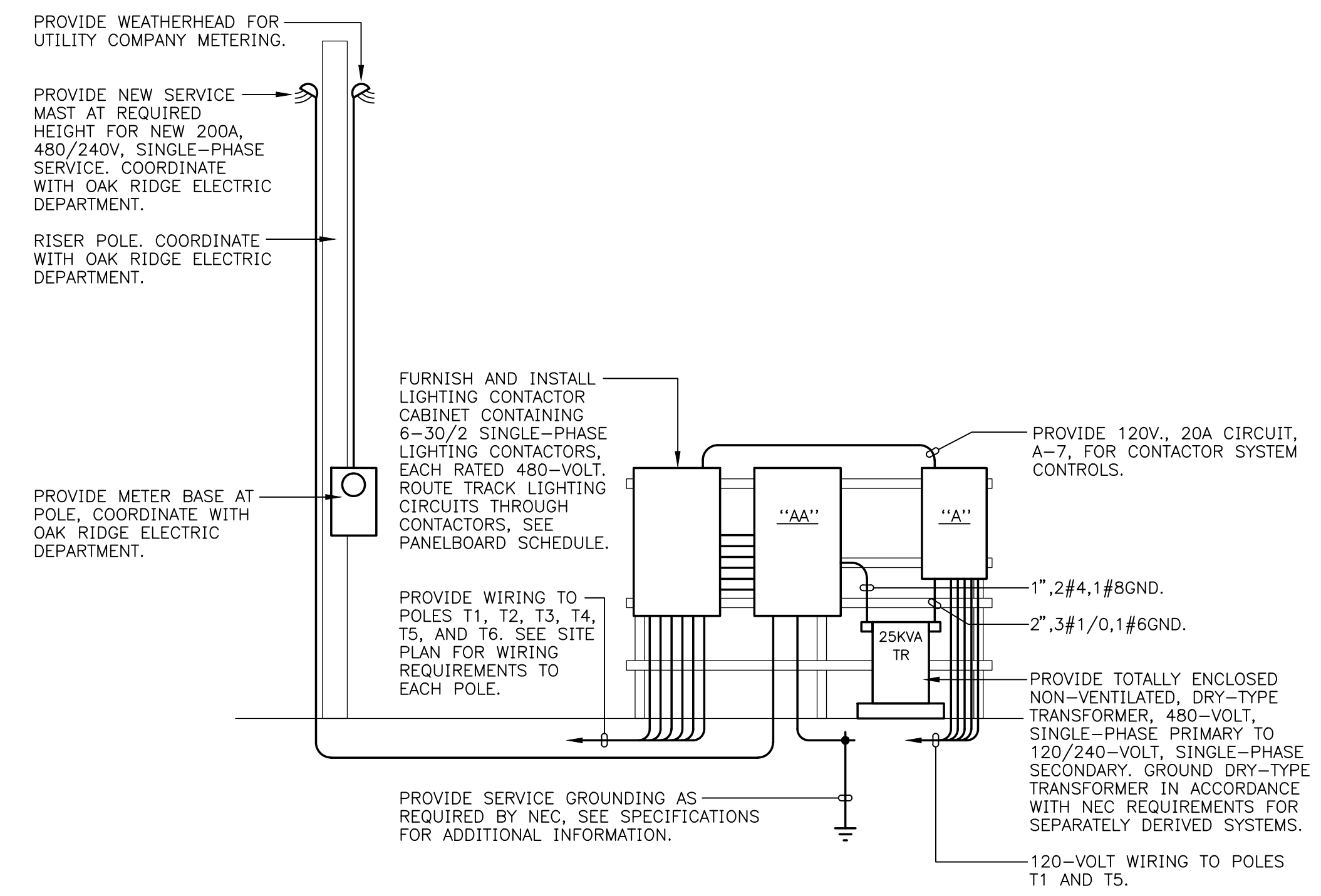
SYMBOL DESCRIPTION

DUPLEX PLUG RECEPTACLE, 120-VOLTS, 20-AMPERES, SHADED CENTER INDICATES EQUIPPED WITH BUILT-IN GROUND FAULT CIRCUIT INTERRUPTER, MOUNT 3" ABOVE BACKSPASH AT WORK COUNTERS/LAVATORIES AND +18" AFF ELSEWHERE UNLESS NOTED TO A DIFFERENT HEIGHT. PROVIDE WEATHER RESISTANT DEVICE AND WEATHERPROOF "EXTRA DUTY WHILE IN USE" COVER WHERE LOCATED OUTDOORS. TAMPER RESISTANT, UNLESS NOT REQUIRED BY CODE.

PANELBOARD, RECESSED OR SURFACE MOUNTED AS INDICATED ON DRAWINGS, TOP 6- FEET ABOVE FINISHED FLOOR ADJUSTED TO OCCUR AT A MASONRY JOINT, SEE PANELBOARD SCHEDULE FOR EQUIPMENT CONTAINED.

CONDUIT IN THE FLOOR CONSTRUCTION OR UNDERGROUND SHOWN TURNING UP.

NEW FIELD LIGHTING POLE, SEE SCHEDULES ON DRAWINGS AND PROJECT MANUAL FOR REQUIREMENTS.



### FEEDER DIAGRAM

NOT TO SCALE

NOTE:  
 1. PROVIDE STEEL HORIZONTAL AND VERTICAL RACK SUPPORTS, ANCHORED IN CONCRETE FOR EQUIPMENT SHOWN ON FEEDER DIAGRAM. COORDINATE EXACT LOCATION OF EQUIPMENT WITH OWNER AND OAK RIDGE ELECTRIC DEPARTMENT.

RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

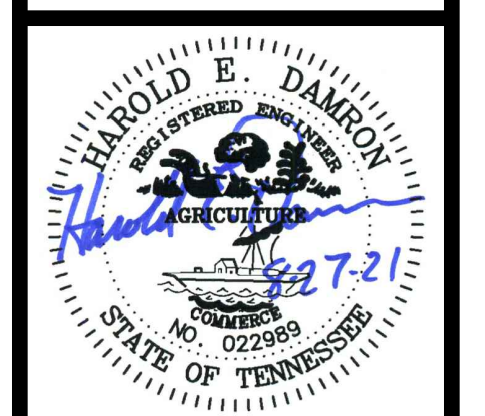
**cope** architecture  
 Cope Associates, Inc. Suite 5  
 2807 Kingston Pike, Knoxville, Tennessee 37919  
 tel: 865.694.9000  
 www.copearchitecture.com

SCHEDULES, DETAILS

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REVISIONS		
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DATE: 08-27-2021



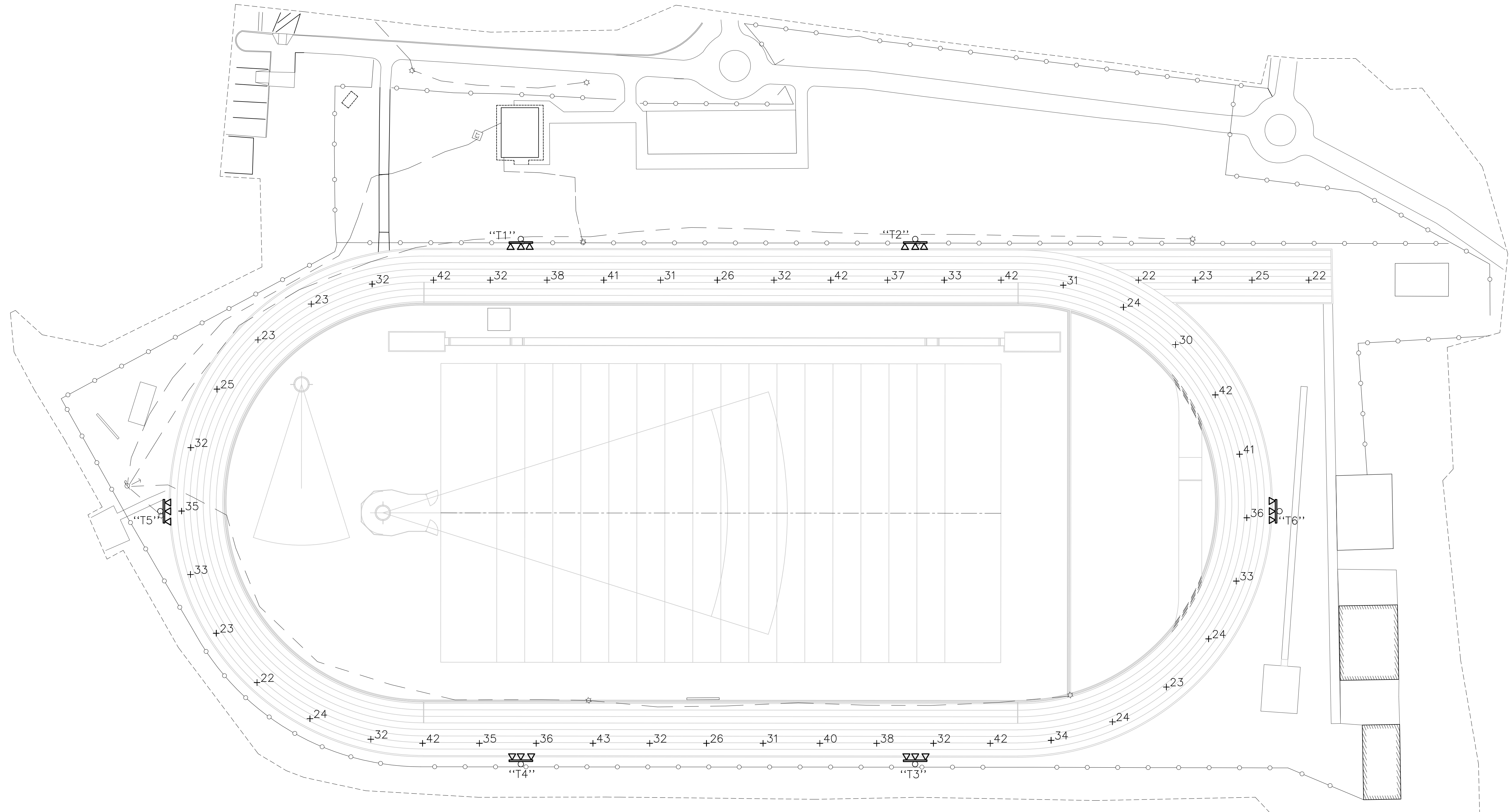
DWG NO.

E101

PROJECT NO.

**Vreeland Engineers Inc.**  
 3107 Sutherland Ave.  
 P.O. Box 10648  
 Knoxville, TN 37939  
 865-637-4451  
 1-800-362-9789  
 vreelandengineers.com

E102 - ORHS Ben Martin Track Lighting - Site Plan - Illumination.dwg  
 A.L.S. 09/08/21 11:31 AM PD21235(IND)



**SITE PLAN - TRACK ILLUMINATION**

SCALE: 1"=30'-0"  
 0' 15' 30' 60'

Pole / Fixture Summary					
Pole ID	Pole Height	Fixture Qty	Luminaire Type	Load	Circuit
T1	60'	4	TLC-LED-1200	4.7KW	AA-5
T2	60'	4	TLC-LED-1200	4.7KW	AA-6
T3	60'	4	TLC-LED-1200	4.7KW	AA-10
T4	60'	4	TLC-LED-1200	4.7KW	AA-9
T5	60'	3	TLC-LED-1200	3.5KW	AA-1
T6	60'	5	(3)TLC-LED-1200; (2)TLC-LED-1500	6.5KW	AA-2

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	22
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	2

- NOTES:**
- SCHEDULES ABOVE ARE FOR FIELD LIGHTING SYSTEM FOR TRACK. REFER TO THIS DRAWING, DRAWING E101, AND PROJECT MANUAL, FOR ADDITIONAL INFORMATION.
  - FOOTCANDLE LEVELS SHOWN ON PLAN ARE CALCULATED BY MUSCO SPORTS LIGHTING, LLC.

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RENOVATIONS FOR  
**ORHS BEN MARTIN TRACK**  
 1450 OAK RIDGE TURNPIKE,  
 OAK RIDGE, TN 37830

**COPE** architecture  
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SITE PLAN - ILLUMINATION

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DWG NO.

**E102**

PROJECT NO.