Robertson County Tennessee

Jody Stewart, Finance Director
Finance Department
523 South Brown Street, Springfield, TN 37172
(615) 384-0202 Fax (615) 384-0237

POST DATE: **January 26, 2024**

BID 1541: Coopertown Elementary Baseball Field

Sealed bids must be received by: Wednesday, February 21, 2024 at 11:00 AM

Pre-bid meeting will be held Wednesday, January 31, 2024 at 3:00 PM at Coopertown Elementary School.

Robertson County Finance Office
523 South Brown Street
Springfield, TN 37172

THE OUTSIDE OF THE ENVELOPE MUST BE MARKED WITH THE BIDDER'S COMPANY NAME, ITEM BID, TIME OF BID OPENING, DATE OF BID OPENING, BID NO. 1541 AND MUST BE MARKED "SEALED BID, DO NOT OPEN."

Bids are opened and read aloud to the public at the Robertson County Finance Office, 523 S. Brown Street, Springfield, TN 37172 immediately after the bid receipt deadline. Each vendor may submit more than one bid provided each bid meets the stated specifications. Each bid must be submitted in a separate sealed envelope with the appropriate notation on the outside. All bids must be signed by an authorized agent and submitted on the prescribed forms. Submission of bids by telegraph, telephone, or other electronic means is strictly prohibited. Any brand name called for the bid specifications is provided as a reference only. Alternate brand name items offered for bid must be equivalent as to function, basic design, type and quality of material, method of construction, and any required dimensions. Bidder must attach a letter of exception to specifications.

For assistance with bid documents, please contact Lyle Cook Martin Architects at (931) 552-4771 or Dee Dee Hooper at Robertson County Finance Office at (615) 384-0202 or by email: dhooper@robcotn.org

Note: Robertson County reserves the right to reject any or all bids, to waive any technicalities or informalities, and to accept any bid deemed in the best interest of the County. All bids will be considered in accordance with Title VI and without regard to age, sex, color, race, creed, national origin, religious persuasion, marital status, political belief, or disability that does not prohibit the performance of duty.

INVITATION TO BID

PROJECT: COOPERTOWN ELEMENTARY BASEBALL FIELD - BID #1541
SPRINGFIELD, TENNESSEE 37172

ARCHITECT: LYLE · COOK · MARTIN ARCHITECTS
310 FRANKLIN STREET, SUITE B
CLARKSVILLE, TENNESSEE 37040
(931) 552-4771

OWNER: ROBERTSON COUNTY SCHOOL SYSTEM

You are invited to bid on a general contract for construction of the above mentioned project. The type of bid required is lump sum.

Bidders will be allowed One Hundred Twenty (120) Calendar Days from the date stipulated in the Notice to Proceed issued by the Architect to achieve Substantial Completion. Liquidated Damages will be assessed in the amount of Two hundred-fifty dollars ($250.00) per calendar day for failure to complete within the designated time.

Bid Documents will be available via digital format by contacting the offices of Lyle Cook Martin Architects. These Documents will be available on Wednesday, January 24, 2024. Those interested in obtaining Bid Documents should contact Montana Bruns or Marshall Duncan at Lyle Cook Martin Architect's office, telephone 931-552-4771 or email: mbruns@lylecookmartin.com or mduncan@lylecookmartin.com.

A pre-bid conference and site visit will be held at 3:00 p.m. local time on Wednesday, January 31st, 2024 at Coopertown Elementary School. Bidders will be held responsible for information provided at this meeting whether in attendance or not. Attendance is strongly encouraged to ensure all aspects of the project are understood.

Bids will be received on February 21st. 2024, until 11:00 a.m., local time at the offices of Robertson County Finance Office, 523 South Brown Street, Springfield, TN 37172, at which time bids will be publicly opened and read. Bids shall be addressed to the attention of Traye Fann, P.E., Robertson County Engineer.

A five percent (5%) Bid Security is required in the form of a Bid Bond or check (certified or cashier's) made payable to Robertson County.

Bidders shall be licensed as General Contractors under Tennessee Code annotated 61-601, etc.

NOTE: The Owner reserves the right to waive informalities at his discretion and to accept any or reject any and all bids. In full consideration of price, the Owner may award the Contract to the bid he deems to be in his best interest. All bids will be considered in accordance with Title VI and without regard to age, sex, color, race, creed, national origin, religious persuasion, marital status, political belief, or disability that does not prohibit the performance of duty.

Coopertown Elementary Baseball Field

For

Robertson County School District

Springfield, Tennessee

Project No. 1450

November 3, 2023

Owner:

Robertson County School District

Architect:
Lyle ● Cook ● Martin Architects
310 Franklin Street
Clarksville, Tennessee 37040
Telephone: (931) 552.4771

Consulting Engineers

Klober Engineering
3556 Tom Austin Hwy #1
Springfield, Tennessee 37172
Telephone: (615) 382-2000

HNA Engineering, pllc
5411 Hayes Road
Arlington, Tennessee 38002
Telephone: (901) 290.6377

INDEX TO SECTIONS

INVITATION TO BID

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SPRINGFIELD, TENNESSEE 37172

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SECTION 00 25 13 – PRE-BID MEETINGS

PART 1 - GENERAL

1.1 PRE-BID MEETINGS

A. A Pre-Bid meeting will be held on Wednesday, January 31, 2024 at 3:00 p.m. on-site at Coopertown Elementary School, 3746 TN-49, Springfield, TN 37172**.** Please meet at the back parking lot. All registered plan holding General Contractors are encouraged to attend.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 00 25 13

INSTRUCTIONS TO BIDDERS

Receipt and Opening of Bids:

Traye Fann, Robertson County Engineer, (herein called the Owner) invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Architect on behalf of the Owner on February 21, 2024, by 11:00 a.m. local time, at the Robertson County Finance Office, 523 South Brown Street, Springfield, TN 37172. The envelopes containing the bids must be sealed, addressed to, Attn: Traye Fann, C/O Robertson County School System, 800 M.S. Couts Blvd., Springfield, TN 37172 and designated as Bid for "Coopertown Elementary Baseball Field, Springfield, Tennessee."

The Owner may consider informal any bid not prepared and submitted in accordance with the provision hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 30 days after the actual date of the opening thereof.

Preparation of Bid:

Each bid must be submitted on the Bid Form which can be found bound in the Project Manual. All blank spaces for bid prices, including alternates and unit pricing, must be filled in, in ink or typewritten in both words and figures.

Each bid must be submitted in a sealed envelope, using cover of bid envelope contained in this project manual, bearing on the outside the name of the bidder, his address, his Tennessee Contractor's license number, license expiration date, that part of classification applying to the bid and the name of the project for which the bid is submitted. In addition, the Bid Envelope must list the electrical, plumbing and HVAC subcontractor's license number if these bids exceed $25,000.00. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another addressed as specified in the Form of Bid.

The bid shall be signed by the Owner of the contracting firm or, if a corporation, an officer of the corporation entitled to bind the corporation to the bid; the corporate seal shall be included.

Contract Documents:

Prime Bidders may obtain sets of documents as identified in the Invitation to Bid. Major subcontractors may receive electronic documents. Bidders securing a complete set(s) of documents shall be considered "Bidders of Record".

Subcontracts:

The bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner.

Telegraphic Modifications:

Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Architect, for the Owner, prior to closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time.

The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner

until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

Method of Bidding:

The Owner invites the following bid for one prime, lump sum contract for the furnishing of all labor, materials, tools, and equipment.

Qualifications of Bidder:

Bids shall be accepted from qualified Contractors.

The Owner may make such investigation as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the contract and to complete the work contemplated therein.

Conditional bids will not be accepted.

Time of Completion:

The Contractor shall commence work as called for in these plans and specifications upon his receipt of written notice to proceed form the Architect and, subject to authorized adjustments, Substantial Completion shall be achieved within 120 calendar days. It is absolutely essential that the contract be completed within the above allotted time, and time is of the essence in this contract.

Conditions of Work:

Each bidder must inform himself fully of the conditions relating to the construction of the project, the employment of labor thereon and shall be held responsible for examining the Drawings, project Manual and addenda. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the contractor in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

Addenda and Interpretations:

Interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally or in writing. Every request for written interpretation should be in writing and emailed to the Project Architect and to be given consideration, must be received at least five (5) days prior to the date fixed for the opening of bids. It is the Contractor’s responsibility to assure that all correspondence is received by the Architect within the time frame listed. All supplemental instructions will be in the form of written addenda to the specifications, which if issued, will be mailed by registered mail or by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes) not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve that bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

Contract Documents:

Digital bid documents only are provided to all bidders.

Insurance and Security for Faithful Performance:

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a Surety bond (Performance and Payment Bond) in the amount of 100% as security for faithful performance for this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner, and licensed to practice in the State of Tennessee.

At the same time, the Contractor shall submit certificates of insurance as required on “Owner’s Instructions for Bonds and Insurance”.

The Contractor shall not commence the work until he has obtained all the insurance required under this contract.

All insurance as required by this Contract to be furnished and paid for by the Contractor; the costs of providing such shall be included in his bid.

Power of Attorney:

Attorneys-in-fact who sign bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

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.

Method of Award:

The Owner reserves the right to waive informalities at its discretion and accept any or reject any or all proposals. In full consideration of price, the Owner may award the contract to the bid he deems to be in his best interest.

Obligations of the Bidder:

At the time of opening of bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his bid.

The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, and the general and local conditions, particularly those bearing upon the following:

a. Transportation, disposal, handling and storage of materials.
b. Roads.
c. Uncertainties of weather, to include flooding potential work areas.
d. The conformation and condition of the ground and subsurface nature as described by Geotechnical Report.
e. The character of equipment and facilities needed prior to and during the prosecution of the Work.
f. The location and disposition of all underground and overhead utilities either active or not in use.
g. All other matters which can in any way affect the Work or the cost thereof under this Contract.

Any failure by the contractor to acquaint himself with al the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

Form of Agreement:

The Agreement and General Conditions shall be written on AIA Document A101 and A201, respectively. Current editions (1997).

Notice to Proceed:

No later than ten (10) days from notice from the Architect to the Contractor to proceed with the Work shall the Contractor be prepared to commence the Work. Failure to do so within the prescribed amount of time shall be cause for rejection of the bid.

BID FORM

TO: Traye Fann, P.E., Robertson County Engineer
For Robertson County Schools
Springfield, Tennessee

PROJECT: Coopertown Elementary Baseball Field - Bid #1541
Springfield, Tennessee

The undersigned as Bidder acknowledges by his signature that he has visited and examined the site of the proposed construction and has received and examined the documents titled Project Manual for the Construction of "Coopertown Elementary Baseball Field", the Drawings, and other documents dated November 3, 2023, and has included their provisions in his Bid. The Bidder further acknowledges that he has received the following Addenda:

Addendum No._____Dated_____
Addendum No._____Dated_____
Addendum No._____Dated_____

In submitting this Bid, the Bidder agrees:

1. To hold open his Bid for 30 days from the date shown above.
2. To enter into and execute a Contract, if awarded, on the basis of this Bid, and to furnish the required Bonds and Insurance.
3. To accomplish Work in accord with the Contract Documents.
4. To complete the Work within 120 calendar days of the Notice to Proceed.
5. Liquidated Damages will be assessed in the amount of Two Hundred-Fifty dollars ($250.00) per calendar day for failure to complete on time.

BASE BID

The Bidder agrees to construct the Work of the base bid for this project for the lump sum price of (show amount in both words and figures):

_____dollars $_____

UNIT PRICES

No Unit Prices.

The Bidder acknowledges by his signature that he agrees to requirements contained in the Invitation to Bid and the Instructions to Bidders and, that should he fail to execute a Contract with the Owner, should the Owner award said Contact to him, that the Owner may rightfully collect the sum of the Bid Bond.

_____
Company

_____Date_____
Authorized Signature

NOTE: If Bidder is a corporation, Bid must be signed by an Officer of the Corporation licensed to bind the Corporation to this Agreement.

SECTION C-00300

STATE CONTRACTOR LICENSE INFORMATION FORM

Complete applicable portions of this form and attach to the outside of envelope containing the Bid

Bidder/Prime Contractor Name: _____

Street Address: _____

City, State, Zip: _____

If bid amount is $25,000 or greater, Bidder shall complete Tennessee Contractor License Information:

License No.: _____ Expiration Date: _____

License Classification: _____ License Limit: _____

Electrical Contractor
(should subcontract portion be $25,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Plumbing Contractor
(should subcontract portion be $25,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Heating, Ventilation and Air Conditioning (HVAC) Contractor
(should subcontract portion be $25,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Vertical Closed Loop Geothermal Heating and Cooling Contractor
(should subcontract portion be $25,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Roofing Contractor
(should subcontract portion be $25,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Masonry Contractor
(should subcontract portion be $100,000 or greater, Tennessee Contractor License Information shall also be provided)

Name: _____
License No.: _____
License Classification: _____
License Expiration Date: _____
License Limit: _____

Per Tennessee Department of Commerce & Insurance Board for Licensing Contractors Rule 0680-01-.24 (2): Award of the subcontract to one not listed on the base bid envelope in violation of T.C.A. §62-6-119 will be subject to review and disciplinary action by the Board.

Contractor's Authorized Agent: _____
(Signature)

Contractor's Authorized Agent: _____
(Printed Name)

REV 2014-01-10

DRUG-FREE WORKPLACE AFFIDAVIT

The undersigned, principal officer of _____, an employer of five (5) or more employees contracting with Robertson County, Tennessee government to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of _____ (hereinafter 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 T.C.A. § 50-9-113.

_____

Authorized Signature, Title (Owner/ Corporate Officer) **Date**

Printed Name:_____

_____

Company Name

_____

Mailing Address

_____

Telephone No. **Fax No.**

Witness signature : _____ **Date:** _____

Witness printed name: _____

NON-COLLUSION AFFIDAVIT

The agent of the bidding firm hereby certifies to the best of his/her knowledge and belief that this bid proposal to Robertson County, Tennessee has not been prepared in collusion with any other seller of similar products. The agent also certifies that the prices, terms and conditions of said bid proposal have not been communicated by the undersigned, nor by any employee or agent of the bidding firm, to any other seller of similar products and will not be communicated to any such seller prior to the official opening of said bid. The agent further states that no official or employee of Robertson County Government has promised any personal financial or other beneficial interest, either directly or indirectly in order to influence award of this bid.

_____ _____

Authorized Signature, Title (Owner/ Corporate Officer) **Date**

Printed Name:_____

_____

Company Name

_____

Mailing Address

_____ _____

Telephone No. **Fax No.**

Contact preferred email address: _____

STATE OF TENNESSEE
IRAN DIVESTMENT ACT AGREEMENT

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 Tennessee Code Annotated § 12-12-106.

Tenn. Code Ann. § 12-12-106 requires the chief procurement officer to publish, using credible information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105.

While inclusion on this list would make a person ineligible to contract with the state of Tennessee, if a person ceases its engagement in investment activities in Iran, it may be removed from the list.

If you feel as though you have been erroneously included on this list please contact the Central Procurement Office at CPO.Website@tn.gov.

_____	_____
COMPANY NAME	DATE
_____	_____
REPRESENTATIVE	TITLE

Robertson County, Tennessee

Letter of Compliance

Successful bidder must comply with and provide this Letter of Compliance.

Amendments to the Tennessee Code Annotated Section 49-5-413 may require employers doing business with the Robertson County Board of Education to have their employees' criminal history records checked. The law provides that no employer or their employee(s):

1. Shall come in direct contact with school children, children in a childcare program; AND/OR
2. Shall enter the grounds of a school or childcare center operated by the Robertson County Board of Education when children are present without this compliance letter on file.

Your signature below indicates that you are fully aware of these requirements and that if applicable to your business relationship with the Robertson County Board of Education: (1) you have fully complied with the investigation required; and (2) you and any of your employees to which this applies are qualified to be in contact with the children and/or on school grounds as set forth by the Statute.

Further, you agree to hold Robertson County and/or its Board of Education harmless in all respects from any failure on your part to follow these requirements.

Authorized Signature (Owner/ Corporate Officer) **Date**

Printed Name _____

Company Name_____

Mailing Address_____

Telephone No._____**Fax No.**_____

Email Address: _____

SECTION 00701 – GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

GENERAL WORK

The General Conditions for the project are those contained in **AIA Document A201 1997 Edition** (number of pages may vary depending on commercial printing or electronic version).

This document is used as a marker in bidding documents as if the entire actual AIA document is included in actual Bidding and Contract Document. Therefore this document 00701 incorporates its provisions verbatim by reference, the same as if included bodily herein.

End of Section 00701

SECTION 00 80 00 – SUPPLEMENTARY CONDITIONS

MODIFICATIONS TO AIA DOCUMENT A 201 1997 EDITION

The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A 201, 1997 Edition. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph of Clause thereof is modified or deleted by these Supplementary Conditions the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

Article 1: Contract Documents

Supplement to Article 1.1:

1.1.2. The Form of Agreement shall be AIA Document A101, Standard Form of Agreement between Owner and Contractor where the basis of payment is a Stipulated Sum.

Supplement to Article 1.2:

1.2.1.1 In case of discrepancies or conflicts between any of the Contractor Documents, the various documents or parts of same shall take precedence in the order listed as follows:

1. The Agreement.
2. The Addenda.
3. The A.I.A General Conditions.
4. The Supplemental General Conditions.
5. The detailed technical specifications.
6. Figured dimensions on the drawings.
7. Large scale details on the drawings over smaller scale details of the same.

All such discrepancies and/or conflicts shall be submitted in writing to the Architect for clarification before the Contractor submits his bid. This should be done at least ten (10) days before bids are opened, so that an addendum may be issued. Should discrepancies and/or conflicts be discovered after the work has started, the Contractor must report the same to the Architect immediately, and no work connected with discrepancies and/or conflicts shall be started; or if started, shall be immediately stopped until the Contractor and the Architect agree on the clarification thereof. In cases of conflicts which are unreported, but must obviously have been observed by the Contractor as he prepared his bid, the more restricting, the more extensive and the more expensive the process or detail shall be assumed to be required.

1.2.1.2 Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the course or parts in which it occurs and shall also apply to all other similar parts of the work, unless otherwise indicated.

In case of difference between small and large scale drawings, the larger scale drawings shall take precedence.

Article 2: Owner

Supplement to Article 2.1:

2.1.1.1 Owner: As identified in Section 011000 – Summary of the Work.

Supplement to Article 2.2:

2.2.5.1 The number of sets and condition of use are further identified in Division 1 Section – Instructions to Bidders.

Article 3: Contractor

Supplement to Article 3.3:

3.3.4 Coordination: The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operation of all trades, sub-contractors, or material men engaged upon the work. He shall be prepared to guarantee to each of his sub-contractors the dimensions which they may require for the fitting of their work to all surrounding work and shall do, or cause his agents to do, all cutting, fitting, adjusting and patching necessary to make the several parts of the work come together and to fit the work of other contractors.

Supplement to Article 3.4:

3.4.2.1 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

.1 represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

.2 represents that he will provide the same Warranty for the substitute that he would for that specified;

.3 certifies that the cost data presented is complete and includes all related costs, and excludes the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and

.4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

3.4.4 General Contractor shall disclose the existence and extent of financial interests, whether direct or indirect, he has in sub-contractors and material suppliers which he may propose for the project.

Article 4: Administration of the Contract.

Supplement to Article 4.1:

4.1.1.1 The Architect for the Project is Lyle ● Cook ● Martin Architects, having principal place of business at 310 Franklin Street, Suite B, Clarksville, Tennessee, 37040. The principals of the firm are Mr. Bradley A. Martin, III, and Mr. Marshall S. Duncan duly licensed in Tennessee, among other jurisdictions.

Article 7: Changes in the Work

Supplement to Article 7.3:

7.3.6 In the first sentence, delete the words "a reasonable allowance for overhead and profit" and substitute "an allowance for overhead and profit in accordance with clauses 7.3.6.1.1 through 7.3.6.1.6 below."

Add the following Subparagraph 7.3.6.1 to 7.3.6.6:

7.3.6.1 In Subparagraph 7.3.6: The allowance for the combined overhead and profit included in the total cost to the Owner shall be based on the following schedule:

.1 For the Contractor, for Work performed by the Contractor's own forces, 15 percent of the cost.

.2 For the Contractor, for Work performed by the Contractor's Sub-contractor, 5 percent of the amount due the Subcontractor.

.3 For each Subcontractor or Sub-subcontractor's own forces, 15 percent of the cost.

.4 For each Subcontractor, for Work performed by the Subcontractor's Sub-subcontractors, 5 percent of the amount due the Sub-subcontractor.

.5 Cost to which overhead and profit is to applied shall be determined in accordance with Subparagraph 7.3.6.

.6 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over $1,000.00 be approved without such itemization.

Article 8: Time

Supplement to Article 8.3

8.3.1.1 Any requests for extensions of time due to adverse weather must be accompanied by complete weather reports from the National Weather Bureau indicating precipitation and temperature reading for the job area and time in question. This data must include reports for the five (5) previous years. The average condition of the previous five years will then be compared to the current or most recent conditions and the differences, if any, shall form the basis of the extension of time.

8.3.2 Neither the Owner nor the Designer shall be obligated or liable to the Contractor for any damages, costs, or expenses of any nature which the Contractor, its Subcontractors, or Sub-subcontractors or any other person may incur as a result of any disruption or delay from any cause, regardless of the actual source of the delay, whether avoidable or unavoidable, it being understood and agreed that the Contractor's sole and exclusive remedy in such event shall be an extension of the Contract Time, but only in accordance with the provisions of the Contract Documents.

Article 9: Payments and Completion

Supplement to Article 9.5

Add the following clause.

9.5.3 Any work required by the Architect including excessive site visitation which shall be required by damages to the work, faulty work or neglect, or delay of Contract completion shall be paid to the Architect by the Owner at the Architect's current hourly rates including reimbursable expenses and costs of consultants. Such payments made by the Owner and attributable to damage or delay of Contract shall be deducted from any amounts owing to the Contractor. The Architect shall advise the Contractor in writing of the occurrence of such charges to the work within seven (7) days of the occurrence of such charges.

Supplement to Article 9.6:

9.6.1.1 The Owner shall pay 95 percent of the amount due the Contractor on account of progress payments.

9.6.2 Add the following to this paragraph:

Starting with the second Application for Payment, the Contractor shall verify that he has paid all subcontractors and major material suppliers those respective amounts drawn on the previous payments for their respective areas.

Supplement to Article 9.6:

Add the following:

9.6.8. Unless the Contractor waives the privilege in writing, upon commencement of the Work, an escrow account shall be established in a financial institution chosen by the Contractor and approved by the Owner.

9.6.9 The escrow agreement shall provide that the financial institution will act as escrow agent, will pay interest on funds deposited in such account in accordance with the provisions of the escrow agreement and will disburse funds from the account upon the direction of the Owner as set forth below. Compensation to the escrow agent for establishing and maintaining the escrow account shall be paid from interest accrued in the escrow account.

9.6.10 As each progress payment is made, the retainage with respect to that payment shall be deposited by the Owner in the escrow account.

9.6.11 The interest earned on funds in the account shall accrue for the benefit of the Contractor until the completion date named in the Construction Contract or the expiration of any authorized extension of such date. Interest earned after such date shall accrue for the benefit of the Owner. Cost of Compensation to the escrow agent paid out of interest earned shall be borne by the Contractor.

9.6.12 When the Contractor has fulfilled all of the requirements of the Contract providing for reduction of retained funds, the escrow agent shall release to the Contractor one-half of the accrued funds but none of the interest thereon. When the Work has been fully completed in a satisfactory manner and the Architect has issued a final Certificate for Payment, the escrow agent shall pay to the Contractor the full amount of funds remaining in the account, including net balance of the interest paid to the account, but less any interest that may have accrued for the benefit of the Owner, which shall be paid to the Owner.

9.6.13 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor, the escrow agent shall make payment to the Contractor as provided in Subparagraph 9.10.3.

Supplement to Article 9.8:

9.8.5 Add the following sentence:

The payment shall be sufficient to increase the total payments to 98 percent of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work and unsettled Claims.

Supplement to Article 9.10.2

9.10.2.1 Prior to Final Payment, submit the following documentation:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens (AIA Document G706A).
4. Evidence of filing of "Notice of Completion" into Public Record as required by state statute.

Supplement to Article 9.10.3

9.10.3.1 Final payment will not be approved until all required As-Built Drawings, Operating Manuals, Guarantees, Equipment Warranties, and Bonds have been delivered to the Architect.

Article 10: Protection of Persons and Property

Supplement to Article 10.2

10.2.4.1 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner reasonable advance notice.

Add the following clauses:

10.2.7.1 Construction Loads:

Structures are designed to support loads of completed work. No provision has been included for unusual stresses or loads imposed by construction operations or equipment. If Contractor desires to place loads in excess of design loads on part of structure, he shall prepare and submit, drawings and stress calculations prepared by a registered professional structural engineer of new work indicated and substantiating the proposed method for supporting materials, scaffolding, machines, and similar heavy or vibrating pieces.

10.2.7.2 The cost of engineering checking and additional inspection, if required of the Architect or his Consultants, and additional labor and materials required to support loads other than those encompassed in the original design shall be included in the Lump Sum Price bid in proposal for entire work. Do not load structures in excess of design loads prior to submission and approval of necessary drawings and calculations.

10.2.8 Existing Utility Lines:

10.2.8.1 The Contractor shall carefully examine the premises for any visible utility lines, including appurtenances of same, which are not indicated on the drawings, but which, in their present locations and positions, will interfere in any way with any of the work called for on the drawings, and/or specifications. The Contractor shall arrange and pay for, without added cost to the Owner, the removal or rerouting of such lines. Rerouting of lines shall be done so as not to interfere with the work and shall be subject to the Architect's approval.

10.2.8.2 In general, the work outlined in this paragraph shall be done by the trade in whose jurisdiction it falls, but each trade shall cooperate fully so that the work involved shall proceed in an orderly manner.

10.2.8.3 In doing all work under this Contract, the Contractor shall carefully protect all existing lines, which are to be maintained temporarily in service or which are not to be changed, from any damage or dislocation and shall make good, at his own expense, any damage done to such lines.

10.2.8.4 In doing work under this Contract, it is possible that the Contractor may encounter unknown underground utility lines. Such lines may be lines which have been or will be abandoned, inactive lines which may be desired to be preserved for possible future use or active lines which must be preserved and either relocated or replaced.

10.2.8.5 Should the Contractor encounter any such unknown lines, he shall at once notify the Architect and Owner's Engineer, who will examine all such lines to determine whether they have been, or may be abandoned or shall be preserved. The Contractor shall assist the Owner's Engineer by making tests or otherwise, as the Architect/Engineer deems necessary, in determining the character of the lines and in the case of lines to be preserved, how best to care for them.

10.2.8.6 If the lines are found to have been, or may be abandoned, the Contractor shall remove same to the extent necessary without extra cost to the Owner.

10.2.8.7 If it is found desirable or necessary to preserve the lines, they shall be capped off, relocated or otherwise cared for as directed by the Architects. In general, they shall be done by the trade having jurisdiction, but all Contractors shall fully cooperate in such work.

END OF SECTION 00800

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Addition to Greenbrier Middle School.

1. Project Location: On the campus of Coopertown Elementary School. The official building site address for construction duration is 3746 TN-49, Springfield, TN 37172.
2. Owner: Robertson County School System.

B. Architect Identification: The Contract Documents, dated November 3, 2023, were prepared for Project by Lyle · Cook · Martin Architects 310 Franklin Street, Clarksville, Tennessee 37040.

C. Briefly, and without force upon the Contract the work is generally as follows:

1. Construct a little league baseball field, dugouts, restrooms, scoring tower with concessions and all related utilities.

1.2 CONTRACT

A. Project will be constructed under a general construction contract.

1. The form of Contract shall be AIA A101 – 1997 Edition, Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a Stipulated Sum.

1.3 USE OF PREMISES

A. General: The Contractor shall remain in the outside field area. The Contractor shall report to the Office for approval to proceed to any other areas on school grounds.

1.4 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. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum. Bidder shall indicate clearly on his Bid Form whether the proposed Alternate is an “ADD” or “DEDUCT” sum.

1.3 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

SECTION 01 23 00 - ALTERNATES

3.1 SCHEDULE OF ALTERNATES

1. Scope includes complete construction of new baseball field. This includes all grading for ball field surface and proposed structures. All new subsurface materials, final grading and final surface for ball field as shown on drawings. Scope includes construction of dugouts as shown on plans and include a 6'x6' storage room on the end of each dugout to be constructed from same materials as dugouts. Provide a painted exterior grade 3'-0" x 7'-0" hollow metal door and frame for access to each storage room. Include all netting, fencing and complete backstop wall construction for the baseball field. Include all concrete paved surfaces as shown on drawings.

2. Scope includes complete construction of restroom structure as shown on attached drawings. This includes complete structure, all mechanical, plumbing and electrical scope. All finishes and signage for the restrooms are included per drawings.

3. Scope includes complete construction of score tower and concessions building. This includes as structure, roofing, mechanical, plumbing and electrical scope. All finishes are included.

END OF SECTION 01 23 00

SECTION 01 26 00 - CONTRACT MODIFICATIONS PROCEDURES

PART 1 - GENERAL

1.1 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 "Unit Prices" for administrative requirements for using unit prices.
3. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.2 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."

1.3 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 time specified in Proposal Request 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 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 the 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 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.
5. 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.

1.4 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.

1.5 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.

1.6 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 012600

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 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 "Allowances" for procedural requirements governing handling and processing of allowances.
2. Division 1 Section "Unit Prices" for administrative requirements governing use of unit prices.
3. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
4. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.2 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.

1.3 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.

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.
3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of 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. 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. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value.

1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. 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.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.

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.

1.4 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 Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

D. 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.

E. 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.

F. 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.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested, before 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 Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.

    a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. 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.

I. 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.

J. 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 012900

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Coordination Drawings.
3. Administrative and supervisory personnel.
4. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Coordination of Multiple Contracts" for a description of the division of Work among separate contracts and responsibility for coordination activities not in this Section.
2. Division 1 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
3. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
4. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.2 COORDINATION

A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with 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.

B. If necessary, 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.

1.3 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. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.

B. Staff Names: Within 10 days prior to starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.4 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. Include special personnel required for coordination of operations with other contractors.

1.5 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 3 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 10 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, Owner's Prime Contractor, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; 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.
    d. Designation of responsible personnel.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for processing Applications for Payment.
    g. Distribution of the Contract Documents.
    h. Submittal procedures.
    i. Preparation of Record Documents.
    j. Use of the premises.
    k. Responsibility for temporary facilities and controls.
    l. Parking availability.
    m. Office, work, and storage areas.
    n. Equipment deliveries and priorities.
    o. First aid.
    p. Security.
    q. Progress cleaning.
    r. Working hours.

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. Contract Documents.
    b. Options.
    c. Related Change Orders.
    d. Purchases.
    e. Deliveries.
    f. Submittals.
    g. Review of mockups.
    h. Possible conflicts.
    i. Compatibility problems.
    j. Time schedules.
    k. Weather limitations.
    l. Manufacturer's written recommendations.
    m. Warranty requirements.
    n. Compatibility of materials.
    o. Acceptability of substrates.
    p. Temporary facilities and controls.

q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Required performance results.
u. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements.
4. 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 bi-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.
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) Hazards and risks.
10) Progress cleaning.
11) Quality and work standards.
12) Change Orders.
13) Documentation of information for payment requests.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

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.

E. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Owner's Prime Contractor 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 the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined 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.
    b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    c. Review present and future needs of each contractor 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) Hazards and risks.
        10) Progress cleaning.
        11) Quality and work standards.
        12) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 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. Field condition reports.
6. Special reports.
7. Construction photographs.

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. Division 1 Section "Photographic Documentation" for submitting construction photographs.
5. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.
6. Division 1 Section "Closeout Procedures" for submitting photographic negatives as Project Record Documents at Project closeout.

1.2 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 is an activity that must be completed before a given activity can be started.

B. 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.

C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. 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 following activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

G. Major Area: A story of construction, a separate building, or a similar significant construction element.

H. Milestone: A key or critical point in time for reference or measurement.

I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.3 SUBMITTALS

A. Qualification Data: For firms and persons specified in "Quality Assurance" Article and in-house scheduling personnel to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. 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 [and Construction Manager's] final release or approval.

C. Preliminary Construction Schedule: Submit two printed copies; one a single sheet of reproducible media, and one a print.

D. Preliminary Network Diagram: Submit two printed copies; one a single sheet of reproducible media, and one a print; large enough to show entire network for entire construction period.

E. Contractor's Construction Schedule: Submit two printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule.

F. CPM Reports: Concurrent with CPM schedule, submit two printed copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.

G. Construction Photographs – Digital Format: Submit two prints of each photographic view taken with monthly progress report.

1. Format: 8-by-10-inch smooth-surface matte – digital prints puched for standard 3-ring binder.
2. 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.
   f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

3. Negatives: Submit a digital file on disk with each monthly submittal in protective envelopes. Identify date photographs where taken.

H. Daily Construction Reports: Submit two copies at monthly intervals.

I. Material Location Reports: Submit two copies at monthly intervals.

J. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

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

1.4 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting.

B. 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.

1.5 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 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 30 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than 14 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
3. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
4. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Uninterruptible services.
    c. Use of premises restrictions.
    d. Seasonal variations.
    e. Environmental control.

6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Sample testing.
    g. Deliveries.
    h. Installation.
    i. Tests and inspections.
    j. Adjusting.
    k. Curing.
    l. Startup and placement into final use and operation.

7. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

    a. Structural completion.
    b. Permanent space enclosure.
    c. Completion of mechanical installation.
    d. Completion of electrical installation.
    e. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.

G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for commencement of the Work.

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.

2.4 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 commencement of the Work. 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.

2.5 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. High and low temperatures and general weather conditions.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (refer to special reports).
8. Stoppages, delays, shortages, and losses.
9. Emergency procedures.
10. Orders and requests of authorities having jurisdiction.
11. Change Orders received and implemented.
12. Construction Change Directives received.
13. Services connected and disconnected.
14. Equipment or system tests and startups.
15. Partial Completions and occupancies.
16. Substantial Completions authorized.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day 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. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.

1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule two days 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.

C. 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.

3.2 CONSTRUCTION PHOTOGRAPHS

A. Photograph Medium: Digital Format.

B. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.

C. Periodic Construction Photographs: Take twelve photographs monthly, coinciding with cutoff date associated with each Application for Payment. Photographer shall select vantage points to best show status of construction and progress since last photographs were taken.

1. Field Office Prints: Retain one set of prints of periodic photographs in field office at Project site, available at all times for reference. Identify photographs the same as for those submitted to Architect.

END OF SECTION 013200

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for submitting Applications for Payment.
2. Division 1 Section "Project Management and Coordination" 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 and construction photographs.
4. Division 1 Section "Photographic Documentation" for submitting periodic construction photographs.
5. Division 1 Section "Quality Requirements" for submitting test and inspection reports and Delegated-Design Submittals and for erecting mockups.
6. Division 1 Section "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.
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 operation and maintenance manual requirements.

1.2 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 approval. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals on signing of a waiver form by the submitting party which indemnifies the Architect from any latent errors contained in the processing of CAD files or errors that might otherwise have been detected by procedures that independently developed the information containing the embedded error.

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.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Contractor.
4. If intermediate submittal is necessary, process it in same manner as initial submittal.
5. Allow 15 days for processing each resubmittal.
6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

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 4 by 5 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. Unique identifier, including revision number.
i. Number and title of appropriate Specification Section.
j. Drawing number and detail references, as appropriate.
k. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise 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 of 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 return submittals, without review received from sources other than Contractor.

1. 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 of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
3. Transmittal Form: Use Contractor’s standard form.
4. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Submittal and transmittal distribution record.
i. Remarks.
j. Signature of transmitter.

I. 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.

J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit five (5) copies of each submittal, unless otherwise indicated. Architect will return four (4) copies. Mark up and retain one returned copy as a Project Record Document.
2. Number of Copies: Submit copies of each submittal, as follows, unless otherwise indicated:

a. Initial Submittal: Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Architect will return submittal with options selected.
b. Final Submittal: Submit five (5) copies, unless copies are required for operation and maintenance manuals. Submit seven (7) copies where copies are required for operation and maintenance manuals. Architect will retain one (1) copy; remainder

will be returned. Mark up and retain one returned copy as a Project Record Document.

B. 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. Mill reports.
j. Standard product operating and maintenance manuals.
k. Compliance with recognized trade association standards.
l. Compliance with recognized testing agency standards.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.

C. 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: 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.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. 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 40 inches.
4. Number of Copies: Submit copies of each submittal, as follows:

a. Initial Submittal: Submit one correctable, translucent, reproducible print and one blue- or black-line print. Architect will return the reproducible print.
b. Initial Submittal: Submit four (4) blue- or black-line prints. Architect will return one print.

c. Final Submittal: Submit five (5) blue- or black-line prints, unless prints are required for operation and maintenance manuals. Submit seven (7) prints where prints are required for operation and maintenance manuals. Architect will retain one (1) print; remainder will be returned. Mark up and retain one returned print as a Project Record Drawing.

D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."

E. Samples: Prepare physical units of materials or products, including the following:

1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
2. 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.
3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the 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.
4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:

   a. Generic description of Sample.
   b. Product name or name of manufacturer.
   c. Sample source.

5. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:

   a. Size limitations.
   b. Compliance with recognized standards.
   c. Availability.
   d. Delivery time.

6. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

   a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three (3) sets of paired units that show approximate limits of the variations.
   b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

7. Number of Samples for Initial Selection: Submit one (1) 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.
8. Number of Samples for Verification: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.

a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

9. 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.

F. Product Schedule or List: 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.

G. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."

H. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for Construction Manager's action.

I. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."

J. Application for Payment: Comply with requirements in Division 1 Section "Payment Procedures."

K. Schedule of Values: Comply with requirements in Division 1 Section "Payment Procedures."

L. 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. 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 three (3) 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 in Division 1 Section "Quality Requirements."

B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."

C. 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.

D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. 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 and, where required, is authorized for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

I. 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.

J. 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.

K. 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.

L. 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.

M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. 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.

N. 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.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures".

P. 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.

Q. 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.

R. 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.

S. 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.

T. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

U. Material Safety Data Sheets: Submit information directly to Owner. If submitted to Architect, Architect will not review this information but will return it with no action taken.

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check 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:

C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 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-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 quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-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.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. 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. Mockups establish the standard by which the Work will be judged.

D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 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.

1.4 REGULATORY REQUIREMENTS

A. Copies of Regulations: Obtain copies of the following regulations and retain at Project site to be available for reference by parties who have a reasonable need:

1.5 SUBMITTALS

A. Qualification Data: 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.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit 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, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

D. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. 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.

B. 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.

C. 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.

D. 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.

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 similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

H. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.

1. Contractor responsibilities include the following:

a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
d. When testing is complete, remove assemblies; do not reuse materials 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.

I. 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 (7) 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.
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.

1.7 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 the 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. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

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 the 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. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.

1. Testing agency will notify Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Testing agency will retest and reinspect corrected work.

D. 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.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

F. 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. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

G. 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.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-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.

SECTION 01 40 00 - QUALITY REQUIREMENTS

I. 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 commencement of the Work.

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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ACCEPTABLE TESTING AGENCIES

A. Submit list of firms acceptable to perform designated tests and inspections for Architect's and Owner's approval prior to testing.

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 Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
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 014000

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," "approved," "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": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Installer": 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.

J. "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. 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. "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

SECTION 01 42 00 – REFERENCES

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. Conflicting Requirements: 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.

1. 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.

D. Copies of Standards: Each entity engaged in construction on Project must 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 and make them available on request.

E. Abbreviations and Acronyms for 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. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Temporary utilities include, but are not limited to, the following:

1. Sewers and drainage.
2. Water service and distribution.
3. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
4. Heating and cooling facilities.
5. Ventilation.
6. Electric power service.
7. Lighting.
8. Telephone service.

C. Support facilities include, but are not limited to, the following:

1. Temporary roads and paving.
2. Dewatering facilities and drains.
3. Project identification and temporary signs.
4. Waste disposal facilities.
5. Field offices.
6. Storage and fabrication sheds.
7. Lifts and hoists.
8. Temporary elevator usage.
9. Temporary stairs.
10. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities include, but are not limited to, the following:

1. Environmental protection.
2. Stormwater control.
3. Pest control.
4. Site enclosure fence.
5. Security enclosure and lockup.
6. Barricades, warning signs, and lights.
7. Covered walkways.
8. Temporary enclosures.
9. Temporary partitions.
10. Fire protection.

E. Related Sections include the following:

1. Division 1 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
2. Division 1 Section "Execution Requirements" for progress cleaning requirements.
3. Divisions 2 through 16 for temporary heat, ventilation, and humidity requirements for products in those Sections.

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

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 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Architect.
3. Testing agencies.
4. Personnel of authorities having jurisdiction.

B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.

C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.

D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

1.4 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
2. 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 Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

1. 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.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.

2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

B. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch- OD corner and pull posts.

C. Lumber and Plywood: Comply with requirements in Division 6 Section Miscellaneous Carpentry."

D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

E. Water: Potable.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

1. Field Offices: Mobile units with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Heating Equipment: Unless Owner authorizes use of permanent heating 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, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

F. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

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.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to municipal system as directed by sewer department officials.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.

1. Provide rubber hoses as necessary to serve Project site.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.

1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

G. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install power distribution wiring overhead and rise vertically where least exposed to damage.

H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
2. Provide warning signs at power outlets other than 110 to 120 V.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

J. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.

1. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.

c. Contractor's home office.
d. Architect's office.
e. Engineers' offices.
f. Owner's office.
g. Principal subcontractors' field and home offices.

2. Provide an answering machine, voice-mail service or messaging service on superintendent's telephone.
3. Furnish superintendent with electronic paging device, “Nextel” or portable two-way radio for use when away from field office.
4. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.
5. Install a coin-operated telephone station at a convenient grade-level location for convenience of personnel.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
3. 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. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate to support loads and to withstand exposure to traffic during construction period. Locate temporary roads and paved areas within construction limits indicated on Drawings.

1. Provide a reasonably level, graded, well-drained subgrade of satisfactory soil material, compacted to not less than 95 percent of maximum dry density in the top 6 inches.
2. Provide gravel paving course of subbase material not less than 3 inches thick; roller compacted to a level, smooth, dense surface.
3. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

D. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
3. Remove snow and ice as required to minimize accumulations.

E. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
2. Prepare temporary signs to provide directional information to construction personnel and visitors.
3. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood in sizes and thicknesses indicated. Support on posts or framing of preservative-treated wood or steel.
4. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

G. Common-Use Field Office: Provide an insulated, weathertight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 16 persons at Project site. Keep office clean and orderly.

1. Furnish and equip offices as follows:

a. Desk and four chairs, four-drawer file cabinet, a plan table, a plan rack, and bookcase.
b. Provide a room of not less than 240 sq. ft. for Project meetings. Furnish room with conference table, 12 folding chairs, and 4-foot- square tack board.

H. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

I. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

J. Temporary Elevator Usage: Refer to Division 14 Sections for temporary use of new elevators.

K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of

noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.

C. Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.

D. Site Enclosure Fence: Before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Set fence posts in compacted mixture of gravel and earth.
2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

E. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

F. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- thick exterior plywood.

G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.

H. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

a. Field Offices: Class A stored-pressure water-type extinguishers.
b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
7. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other

substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following administrative and procedural requirements: 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 "References" for applicable industry standards for products specified.
3. Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.
4. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 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, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. 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.

D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

E. 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.

1.3 SUBMITTALS

A. Product List: Submit a list, in tabular from, 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 that products 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 one week 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: Change Order.
b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.4 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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.5 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.

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.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

1.6 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.

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: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 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 OPTIONS

A. 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 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.

    a. Substitutions may be considered, unless otherwise indicated.

2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.

    a. Substitutions may be considered, unless otherwise indicated.

3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

    a. Substitutions may be considered, unless otherwise indicated.

4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

    a. Substitutions may be considered, unless otherwise indicated.

5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Product Substitutions" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either 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 "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Substitutions may be considered, unless otherwise indicated.

9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching 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 (and manufacturer) 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, 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, or texture from manufacturer's product line that includes both standard and premium items.

11. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 60 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

B. 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.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:

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 (Not Used)

END OF SECTION 016000

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. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.

B. Related Sections include the following:

1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 1 Section "Submittal Procedures" for submitting surveys.
3. Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. 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. Qualification Data: For professional engineer to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

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. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.
b. List of detrimental conditions, including substrates.
c. List of unacceptable installation tolerances.
d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. 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 and Owner 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. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's and Owner’s written permission.

C. 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.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

E. 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 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 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.
4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.

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. 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.

G. 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.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 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: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. 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.

I. 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.

J. 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.

K. 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.

3.8 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."

3.9 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.

3.10 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 017000

SECTION 01 73 10 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections include the following:

1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building for alterations.
2. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
3. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

    a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.2 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-protection systems.
4. Control systems.
5. Communication systems.
6. Conveying systems.
7. Electrical wiring systems.
8. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Equipment supports.
4. Piping, ductwork, vessels, and equipment.
5. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.

a. Processed concrete finishes.
b. Stonework and stone masonry.
c. Ornamental metal.
d. Matched-veneer woodwork.
e. Preformed metal panels.
f. Roofing.
g. Firestopping.
h. Stucco and ornamental plaster.
i. Terrazzo.
j. Finished wood flooring.
k. Fluid-applied flooring.
l. Wall covering.
m. HVAC enclosures, cabinets, or covers.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

SECTION 01 73 10 – CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 017310

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Operation and maintenance manuals.
4. Warranties.
5. Instruction of Owner's personnel.
6. 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 "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.
3. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
4. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.2 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, 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. Complete startup testing of systems.
8. Submit test/adjust/balance records.
9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
10. Complete final cleaning requirements, including touchup painting.
11. 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.

1.3 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. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

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.

1.4 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.

1.5 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. 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 cannot be readily identified and recorded 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.
d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy 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. Note related Change Orders, Record Drawings, and Product Data, where applicable.

D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

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, Record Drawings, and Record Specifications, where applicable.

E. Miscellaneous Record Submittals: 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.

1.6 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

    a. Emergency instructions and procedures.
    b. System, subsystem, and equipment descriptions, including operating standards.
    c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
    d. Description of controls and sequence of operations.
    e. Piping diagrams.

2. Maintenance Data:

    a. Manufacturer's information, including list of spare parts.
    b. Name, address, and telephone number of Installer or supplier.
    c. Maintenance procedures.
    d. Maintenance and service schedules for preventive and routine maintenance.
    e. Maintenance record forms.
    f. Sources of spare parts and maintenance materials.
    g. Copies of maintenance service agreements.
    h. Copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

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. On advice of Owner’s legal counsel, revise paragraph below to suit Project. Sometimes, extended warranties may be necessary.

C. 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.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

SECTION 01 77 00 - CLOSEOUT PROCEDURES

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 DEMONSTRATION AND TRAINING

A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Provide instructors experienced in operation and maintenance procedures.
2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. 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. For each training module, develop a learning objective and teaching outline. Include instruction for the following:

1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.2 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. 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. Clean exposed exterior 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.
f. 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.
g. Replace parts subject to unusual operating conditions.
h. 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 to comply with requirements for new fixtures.
i. Leave Project clean and ready for occupancy.

C. 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 017700

INVITATION TO BID

PROJECT: COOPERTOWN ELEMENTARY BASEBALL FIELD - BID #1541
SPRINGFIELD, TENNESSEE 37172

ARCHITECT: LYLE · COOK · MARTIN ARCHITECTS
310 FRANKLIN STREET, SUITE B
CLARKSVILLE, TENNESSEE 37040
(931) 552-4771

OWNER: ROBERTSON COUNTY SCHOOL SYSTEM

You are invited to bid on a general contract for construction of the above mentioned project. The type of bid required is lump sum.

Bidders will be allowed One Hundred Twenty (120) Calendar Days from the date stipulated in the Notice to Proceed issued by the Architect to achieve Substantial Completion. Liquidated Damages will be assessed in the amount of Two hundred-fifty dollars ($250.00) per calendar day for failure to complete within the designated time.

Bid Documents will be available via digital format by contacting the offices of Lyle Cook Martin Architects. These Documents will be available on Wednesday, January 24, 2024. Those interested in obtaining Bid Documents should contact Montana Bruns or Marshall Duncan at Lyle Cook Martin Architect's office, telephone 931-552-4771 or email: mbruns@lylecookmartin.com or mduncan@lylecookmartin.com.

A pre-bid conference and site visit will be held at 3:00 p.m. local time on Wednesday, January 31st, 2024 at Coopertown Elementary School. Bidders will be held responsible for information provided at this meeting whether in attendance or not. Attendance is strongly encouraged to ensure all aspects of the project are understood.

Bids will be received on February 21st. 2024, until 11:00 a.m., local time at the offices of Robertson County Finance Office, 523 South Brown Street, Springfield, TN 37172, at which time bids will be publicly opened and read. Bids shall be addressed to the attention of Traye Fann, P.E., Robertson County Engineer.

A five percent (5%) Bid Security is required in the form of a Bid Bond or check (certified or cashier's) made payable to Robertson County.

Bidders shall be licensed as General Contractors under Tennessee Code annotated 61-601, etc.

NOTE: The Owner reserves the right to waive informalities at his discretion and to accept any or reject any and all bids. In full consideration of price, the Owner may award the Contract to the bid he deems to be in his best interest. All bids will be considered in accordance with Title VI and without regard to age, sex, color, race, creed, national origin, religious persuasion, marital status, political belief, or disability that does not prohibit the performance of duty.

SITE PLAN FOR

COOPERTOWN ELEMENTARY BASEBALL FIELD

3746 HIGHWAY 49-W
SPRINGFIELD, TN
ROBERTSON COUNTY

SHEET INDEX

Base Bid and Alternates-

Base Bid - Scope includes all new underground utilities to serve new ball field and new structures, including water, sewer, and electrical. Complete all trenching back to a finish grade status

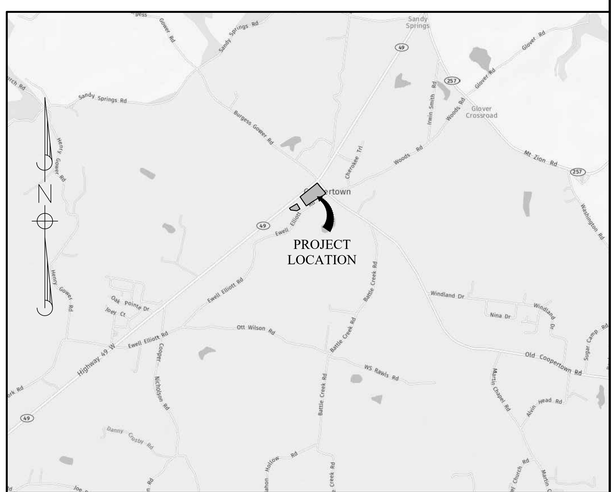
Alternate #1 - Scope includes complete construction of new baseball field. This includes all grading for ball field surface and proposed structures. All new subsurface materials,final grading and final surface for ball field as shown on drawings. Scope includes construction of dugouts as shown on plans and include a 6'x6' storage room on the end of each dugout to be constructed from same materials as dugouts. Provide a painted exterior grade 3'-0" x 7'-0" hollow metal door and frame for access to each storage room. Include all netting, fencing and complete backstop wall construction for the baseball field. Include all concrete paved surfaces as shown on drawings.

Alternate #2 - Scope includes complete construction of restroom structure as shown on attached drawings. This includes complete structure, all mechanical, plumbing and electrical scope. All finishes and signage for the restrooms are included per drawings.

Alternate #3 - Scope includes complete construction of score tower and concessions building. This includes as structure, roofing, mechanical, plumbing and electrical scope. All finishes are included.

COOPERTOWN ELEMENTARY BASEBALL FIELD

DATE: 11/03/23



Vicinity Map
Not to Scale

LYLE·COOK·MARTIN
ARCHITECTS
310 Franklin Street / Clarksville, TN 37040
TEL 931.552.4771/ EMAIL mduncan@lylecookmartin.com

KLOBER
ENGINEERING SERVICES
SERVING CLIENTS WITH CIVIL AND ENVIRONMENTAL ENGINEERING SERVICES
3556 TOM AUSTIN HWY, SUITE 1, SPRINGFIELD, TN 37172
PHONE: (615) 382-2000 FAX: (888) 373-4485
www.klobereng.com

JOSHUA M. LYON, P.E. TN#112331

NOT FOR CONSTRUCTION

APPLICANT/ PROPERTY OWNER/ DEVELOPER:

ROBERTSON COUNTY
BOARD OF EDUCATION
523 SOUTH BROWN STREET
SPRINGFIELD, TN 37172
(615) 384-5588

DEED REFERENCE:

MAP 111, PARCEL 184 TAORCT
RB 82, PG 35 RORCT
MAP 111, PARCEL 185 TAORCT
RB 241, PG 366 RORCT
MAP 111, PARCEL 186 TAORCT
RB 748, PG 491 RORCT
(2.65 ACRES OFFSITE SEPTIC)

PROPERTY INFORMATION:

USE: PUBLIC SERVICE
AREA: 751,498 S.F. = 17.25 ACRES
(PLUS 115,250 S.F. = 2.65 ACRES OFFSITE ZONED RURAL RESIDENTIAL)

SITE USE

EXISTING USE: SCHOOL
PROPOSED USE: SCHOOL

LOT COVERAGE

EXISTING BUILDING AREA = 155,570 S.F.
NEW BUILDING AREA = 964 S.F.
BUILDING COVERAGE = 00.61%
PROPOSED CONCRETE SURFACE: ±4,041 S.F.
PROPOSED ASPHALT SURFACE: ±275 S.F.
IMPERVIOUS AREA: ±5,280 S.F. = 03.39%

TEMPORARY BENCHMARK:

RAILROAD SPIKE IN POWER POLE AT SOUTHEAST CORNER OF PROPERTY, POLE NEAREST TO INTERSECTION OF OLD COOPERTOWN ROAD AND EWELL ELLIOTT ROAD.
ELEVATION = 735.96'

UTILITIES NOTE:

COORDINATE LOCATION AND INSTALLATION OF UTILITIES WITH MECHANICAL, ELECTRICAL AND PLUMBING PLANS, SPRINGFIELD WATER DEPARTMENT AND TENNESSEE WATER RESOURCES

WATER: SPRINGFIELD WATER & WASTEWATER
CONTACT: TERRY BEERS
824 CENTRAL AVENUE
SPRINGFIELD, TENNESSEE 37172
TELEPHONE: (615) 382-1600

SEWER: TENNESSEE DIVISION OF WATER RESOURCES
CONTACT: GREG CLEMENT
501 S. BROWN ST.
SPRINGFIELD, TN 37172
TELEPHONE: (615) 384-0240

ELECTRIC: CEMC
CONTACT: NICKY ROBERTS
1201 5TH AVE. WEST
SPRINGFIELD, TENNESSEE 37172
TELEPHONE: (800) 987-2362

GAS: SPRINGFIELD GAS
CONTACT: GREG RIDDLE
1311 R.W. GORDON DRIVE
SPRINGFIELD, TENNESSEE 37172
TELEPHONE: (615) 382-1618

GENERAL NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION ON THIS SITE THE LOCATION OF UTILITIES MUST BE IDENTIFIED BY CALLING THE TOLL-FREE TENNESSEE ONE CALL REFERENCE NUMBER 1-800-351-1111.
2. ALL CONSTRUCTION ON THIS SITE SHALL COMPLY WITH APPLICABLE REGULATIONS AS SPECIFIED BY THE CITY OF SPRINGFIELD AND THE STATE OF TENNESSEE.
3. THE BOUNDARY SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY B2L LAND SURVEYORS OF JOELTON, TN.
4. ACCORDING TO MAP 47147C0355C, DATED 04/16/2008, THIS SITE IS NOT IN A FLOOD HAZARD AREA.
5. SITE CONSTRUCTION WILL BEGIN FOLLOWING PLAN APPROVAL BY THE CITY OF COOPERTOWN.

GENERAL UTILITY NOTES:

1. WATER AND SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL CODES AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PAY ALL FEES AND OBTAIN ALL PERMITS.
3. ALL EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE AND ARE BASED ON TOPOGRAPHIC SURVEYS AND RECORD DRAWINGS FROM THE FACILITY. ADDITIONAL UTILITIES MAY BE PRESENT. SHOULD UNCHARTED UTILITIES BE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE FOR INSTRUCTIONS.
4. THE CONTRACTOR SHALL NOTIFY THE TENNESSEE ONE-CALL SYSTEM, INC. (TOCS) AT 1-800-351-1111 OF 811 AND ANY NON-TOCS MEMBER UTILITY INDIVIDUALLY, AT LEAST 3 WORKING DAYS PRIOR TO ANY EXCAVATION AND/OR DEMOLITION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE LOCAL UTILITY COMPANY NO LESS THAN 72 HOURS PRIOR TO COMMENCING WORK.
5. MAINTAIN 10-FOOT HORIZONTAL AND 18-INCH VERTICAL SEPARATION BETWEEN SANITARY SEWER AND WATER SUPPLY LINES UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES INCLUDING IRRIGATION. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. RELOCATE IRRIGATION LINES AS NECESSARY FOR CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO FINAL PAVEMENT CONSTRUCTION.
8. BACKFILL UTILITY TRENCHES UNDER PAVEMENT AREAS WITH CRUSHED STONE OR GRAVEL. BACKFILL UTILITY TRENCHES IN LAWN AREAS WITH SATISFACTORY FILL MATERIAL COMPACTED TO AT LEAST 95% OF MAXIMUM PER ASTM D698.
9. ADJUST ALL EXISTING CASTINGS TO MATCH PROPOSED FINISH GRADE.
10. THRUST BLOCK ALL WATERLINE FITTINGS WITH CONCRETE (4,000 P.S.I. MINIMUM) POURED AGAINST UNDISTURBED EARTH TO SUSTAIN TEST PRESSURE SPECIFIED. FORM THRUST BLOCKING SO AS TO NOT EMBED JOINTS, BOLTS, VALVE BOXES, OR OPERATING NUTS.
11. PROVIDE VENTS AT HIGH POINTS IN WATERLINE AS NECESSARY FOR EXPELLING AIR DURING FILLING OF WATERLINE. PROVIDE BRONZE CORPORATION STOP FOR CLOSING VENT DURING TESTING AND SERVICE. LEAVE VENT COMPONENTS PLUGGED AND ATTACHED TO PIPE AFTER SUCCESSFUL TEST.
12. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
13. ALL SANITARY SEWER PIPE SHALL BE CLASS SDR 35 PVC UNLESS NOTED OTHERWISE.
14. ALL WATER MAINS SHALL BE PRESSURE C900 PVC UNLESS NOTED OTHERWISE.
15. ALL FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED BETWEEN 3' AND 7' FROM PAVED SURFACE.
16. PROVIDE AS-BUILT DRAWINGS WHICH INCLUDE AT LEAST TWO DIMENSIONS TO EACH VALVE AND MANHOLE FROM KNOWN SITE FEATURES. DRAWINGS SHALL INCLUDE VERTICAL AND HORIZONTAL INFORMATION ON ALL NEW UTILITIES AS WELL AS EXISTING UTILITIES ENCOUNTERED.

LAYOUT AND PAVING NOTES:

1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES, TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, AND REPAIR CONTRACTOR CAUSED DAMAGE ACCORDING TO CURRENT LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. RELOCATE IRRIGATION LINES AS NECESSARY FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL PERMITS, AND PAY ALL FEES PRIOR TO BEGINNING WORK.
4. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES PRIOR TO INSTALLATION OF PAVEMENT.
5. THE CONTRACTOR SHALL PROTECT ALL TREES TO REMAIN, IN ACCORDANCE WITH THE SPECIFICATIONS. DO NOT OPERATE OR STORE HEAVY EQUIPMENT, NOR HANDLE, NOR STORE MATERIALS WITHIN THE DRIPLINES OF TREES OR OUTSIDE THE LIMIT OF GRADING.
6. CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH. ALL CONCRETE SHALL BE 3,500 P.S.I. UNLESS OTHERWISE NOTED. CURB RAMPS, SIDEWALK SLOPES, AND DRIVEWAY RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL CURRENT ADA & LOCAL REQUIREMENTS. IF APPLICABLE, THE CONTRACTOR SHALL REQUEST INSPECTION OF SIDEWALK AND RAMP FORMS PRIOR TO PLACEMENT OF CONCRETE.
7. ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN WHICH RESULTS FROM NEW CONSTRUCTION SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
8. DIMENSIONS ARE TO THE FACE OF CURB, EDGE OF CONCRETE, OR TO THE FACE OF BUILDING, UNLESS OTHERWISE NOTED.
9. COORDINATES ARE FOR FACE OF BUILDINGS, CENTER LINES OF DRIVEWAYS, CENTER OF SANITARY SEWER MANHOLES, AND CENTER AT FACE OF CURB ON CURB INLETS, UNLESS OTHERWISE NOTED.
10. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
11. MAINTAIN ONE SET OF APPROVED CONSTRUCTION DRAWINGS ON THE JOB SITE, WITH FIELD REVISIONS, FOR DISTRIBUTION TO THE ENGINEER UPON COMPLETION.
12. PARKING STRIPES SHALL BE 4-INCH WHITE PAVEMENT PAINT.
13. CONTRACTION JOINTS SHALL BE CONSTRUCTED TO A DEPTH OF AT LEAST 1/4 THE CONCRETE THICKNESS, AND SHALL DIVIDE THE CONCRETE ROUGHLY INTO SQUARES WITH MAXIMUM 10' SEGMENTS.
14. REFER TO THE MOST CURRENT ARCHITECTURAL PLANS FOR BUILDING LAYOUT AND DIMENSIONS

GRADING AND DRAINAGE NOTES:

1. TOPSOIL SHALL BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM DEPTH OF 6 INCHES. MAKE STOCKPILES FREE DRAINING AND PROVIDE EROSION AND SEDIMENTATION CONTROLS AROUND STOCKPILES.
2. ALL GRADED AREAS SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER GRADING IS COMPLETED.
3. CONSTRUCT TEMPORARY EROSION CONTROL AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
4. ALL DRAINAGE STRUCTURES, PIPES WITHIN THE LIMITS OF CONSTRUCTION, AND DETENTION PONDS SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
5. THE GRATE ELEVATIONS FOR CURB INLETS ARE GIVEN TO THE CENTER OF THE INLETS AT THE FACE OF CURB. THE GRATES SHALL SLOPE LONGITUDINALLY WITH THE PAVEMENT GRADE. ADJUST THE CASTING TO FALL ALONG THE CURB LINE.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, PROTECT UTILITIES TO REMAIN, AND REPAIR CONTRACTOR-CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AT CONTRACTOR'S EXPENSE.
7. NOTIFY LOCAL UTILITY LOCATOR SERVICE OF INTENDED EXCAVATION/UTILTY TRENCHING OPERATIONS.
8. IN THE EVENT OF ANY DISCREPANCIES FOUND IN THE DRAWINGS OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
9. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND OBTAIN ALL PERMITS.
10. SPOT ELEVATIONS AND CONTOURS REPRESENT PROPOSED FINISHED GRADE AND TOP OF FINISHED PAVEMENT.
11. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND INVERTS PRIOR TO BEGINNING WORK.
12. EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST IN A LEGAL MANNER.
13. CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE. SHOULD THE CONTRACTOR HAVE ANY QUESTIONS OF THIS INTENT OR ANY PROBLEMS WITH THE CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED PRIOR TO BEGINNING WORK.
14. EXISTING MANHOLE CASTINGS TO REMAIN SHALL BE RESET TO MATCH NEW GRADE.
15. ALL CURBS AND SIDEWALKS SHALL BE BACKFILLED WITH TOPSOIL, AND SEEDED AND MULCHED, UNLESS OTHERWISE NOTED.
16. ALL PIPES UNDER PAVED AREAS SHALL BE BACKFILLED WITH CRUSHED STONE. ALL PIPES UNDER LAWN AREAS SHALL BE BACKFILLED WITH SATISFACTORY MATERIAL COMPACTED TO 95% MAXIMUM PER ASTM D698.
17. ALL STORM DRAINAGE PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED. PIPE LENGTHS SHOWN ARE APPROXIMATE.
18. ALL CUT AND FILL SLOPES TO BE 3:1 MAXIMUM, UNLESS NOTED OTHERWISE.
19. SATISFACTORY TOPSOIL IS DEFINED AS SOIL BEING FREE OF SUBSOIL, CLAY LUMPS, STONES, OTHER OBJECTS OVER 1 INCH IN DIAMETER, OR CONTAMINANTS.
20. AFTER STRIPPING TOPSOIL, PROOFROLL SUBGRADE WITH A LOADED DUMP TRUCK WITH A MINIMUM WEIGHT OF 20 TONS. A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED WITH DURING PROOFROLLS.
21. FINISH GRADES TOLERANCES ARE 0.10 FOOT ABOVE OR BELOW DESIGN ELEVATIONS.
22. MAXIMUM SLOPES IN ALL DIRECTIONS OF HANDICAP PARKING SPACES/AISLES SHALL BE 2%.
23. EARTHWORK FILL SHALL INCLUDE STRIPPING TOPSOIL AND PLACING ENGINEERED FILL IN MAXIMUM 8" COMPACTED LIFTS WITH DENSITY OF 95% OF MAXIMUM PER ASTM D698. CONSULT WITH CURRENT GEOTECHNICAL REPORT.
24. AN AS-BUILT TOPOGRAPHIC SURVEY OF THE FINAL STORMWATER MANAGEMENT POND(S) AND OUTLET STRUCTURE(S) SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW FOR COMPLIANCE WITH THE ORIGINAL DESIGN. THE CONTRACTOR MAY SUBMIT A PRELIMINARY TOPOGRAPHIC SURVEY TO THE ENGINEER PRIOR TO FINAL TOPSOIL APPLICATION.
25. THE STORMWATER RUNOFF CALCULATIONS ON THIS SITE HAVE BEEN PERFORMED USING THE TR-55 METHOD AND RATIONAL METHOD. RAINFALL DATA WAS OBTAINED FROM NRCS USGS PROGRAM. THE DETENTION BASIN IS SIZED TO HANDLE A 2 THROUGH 100 YEAR STORM EVENTS WITHOUT OVERTOPPING THE POND. STORMWATER PIPES HAVE BEEN SIZED TO HANDLE A 25 YEAR STORM EVEN UNDER FREEFLOW CONDITIONS.
26. IF PRESENT THE WATER QUALITY FEATURES SHALL BE INSPECTED AND CLEANED PER THE APPROVED LONG TERM MAINTENANCE PLAN.
27. IF A STORMWATER QUALITY UNIT/SYSTEM IS REQUIRED ON A SITE PLAN/SUBDIVISION PLAT, THE ENGINEER OF RECORD WILL BE REQUIRED TO INSPECT AND CERTIFY TO THE CONSTRUCTION/INSTALLATION OF THE FACILITY PER THE PLANS APPROVED BY THE CITY OF COOPERTOWN. WRITTEN CERTIFICATION SHALL INCLUDE AS-BUILT DRAWINGS, PICTURES OF INSTALLATION AND VARIOUS ANALYSES THAT MAY BE REQUIRED BY THE STORMWATER DEPARTMENT.
28. ALL TEMPORARY AND PERMANENT BMP'S, INCLUDING DETENTION, SHALL BE INSPECTED BY THE ENGINEER OF RECORD AND CERTIFIED TO BE IN ACCORDANCE WITH THE APPROVED CONSTRUCTION PLANS PRIOR TO THE COMMENCEMENT OF WORK AND THE ISSUANCE OF AN OCCUPANCY PERMIT.

EP&SC NOTES:

1. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE INDIVIDUAL RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS.
2. THE CONSTRUCTION ACTIVITY ANTICIPATED ON THIS PROJECT INCLUDES CLEARING, GRUBBING, GRADING, TOPSOILING, AND SEEDING.
3. THE PROJECT IS SUBJECT TO INSPECTION BY THE CITY AT ANY TIME AND ITEMS FOUND DEFICIENT SHALL BE IMMEDIATELY CORRECTED. THE CITY MAY STOP CONSTRUCTION OF PROPERTIES, OR ADMINISTER OTHER ENFORCEMENT ACTIONS AS DEFINED BY THE CITY.
4. INSPECTIONS SHALL BE CONDUCTED PER THE LATEST EDITION OF THE TDEC CONSTRUCTION GENERAL PERMIT. SEE SECTION 3.5.8.2.
5. THE APPROXIMATE TOTAL AREA OF THE SITE IS 17.25 ACRES. THE APPROXIMATE TOTAL AREA OF GRADING PROPOSED IS 1.94 ACRES.
6. THE INCREASE IN POST-CONSTRUCTION IMPERVIOUS AREA IS 0.12 ACRES.
7. THE ANTICIPATED FILL MATERIAL WILL CONSIST OF ON-SITE SOIL AND/OR OFF-SITE SOIL BORROW MATERIALS.
8. IF REQUIRED, THE OWNER AND THE CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER APPLICATION TO THE LOCAL TENNESSEE ENVIRONMENTAL ASSISTANCE CENTER AT LEAST 30 DAYS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR AND OWNER SHALL PROVIDE (WITH THE NOI FOR THIS PROJECT) EXISTING NPDES PERMIT TRACKING NUMBERS FOR SITE WHERE BORROW MATERIAL MAY BE OBTAINED AND WHERE SPOIL MATERIAL MAY BE PLACED. SHOULD PERMITS NOT EXIST FOR BORROW AND SPOIL SITES, SEPARATE NOI'S SHALL BE PROVIDED BY THE OWNER OR CONTRACTOR.
9. IF REQUIRED, THE NOTICE OF COVERAGE (NOC) OF THE PERMIT TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER SHALL BE POSTED NEAR THE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL HAVE A SET OF APPROVED EROSION CONTROL PLANS ON SITE DURING ALL CONSTRUCTION.
10. IF REQUIRED, AN EROSION PREVENTION SILTATION CONTROL PLAN (EP&SC) AND LAND DISTURBANCE PERMIT SHALL BE IN PLACE PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY. EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD; GENERALLY CONSIDERED TO BE THROUGH THE COMPLETION OF RESTORATION. IF REQUIRED, THE EP&SC PLAN ALONG WITH AN INSPECTION CHECKLIST AND STORMWATER PERMIT MUST BE AT THE PROJECT SITE AT ALL TIMES. THE INSPECTION CHECKLIST SHALL HAVE A RECORD OF DATES EP&SC DEVICES ARE INSPECTED AND ANY CORRECTION ACTION TAKEN OR MAJOR OBSERVATIONS. BMP'S MUST BE INSPECTED BY A QUALIFIED PERSON WHO HAS TAKEN AN APPROVED EROSION AND SEDIMENTATION COURSE.
11. APPROVED INLET PROTECTIONS FOR NEARBY STORM SEWER CURB AND DROP INLETS MUST BE INSTALLED PRIOR TO GRADING COMMENCEMENT.
12. SILT FENCE, OR OTHER SEDIMENT BARRIERS ARE TO BE INSTALLED PROPERLY ALONG TOPOGRAPHICAL CONTOURS DOWN SLOPE OF THE AREA TO BE DISTURBED PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY.
13. ALL EP&SC DEVICES ARE TO REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED AND A GOOD STAND OF GRASS HAS BEEN ESTABLISHED.
14. STABILIZATION MEASURES MUST BE PERFORMED WITHIN SEVEN (7) DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND WITHIN FOURTEEN (14) DAYS AFTER FINAL GRADING. ALL SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITHIN SEVEN (7) DAYS.
15. REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL REQUIREMENTS.
16. PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE REMOVED MORE THAN 14 CALENDAR DAYS PRIOR TO GRADING. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED AND UNWORKED FOR MORE THAN 14 CALENDAR DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATS. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 14 CALENDAR DAYS OF FINAL GRADING.
17. EXCAVATED TOPSOIL TO BE REUSED MUST BE STOCKPILED AND ENCIRCLED WITH SILT FENCING.
18. THIS SITE SHALL CONTAIN A TEMPORARY STONE CONSTRUCTION ENTRANCE THAT CONFORMS TO REQUIRED SPECIFICATIONS PRIOR TO GRADING COMMENCEMENT. THE STONE SHALL BE 2 TO 3 INCH IN DIAMETER AND SHALL BE KEPT CLEAN BY ADDING STONE AS NEEDED. IT SHALL BE AT LEAST 8 INCHES DEEP UNDERLAIN WITH FILTER FABRIC AND 20 FEET WIDE.
19. VEGETATIVE BUFFERS OR OTHER PROTECTION MUST BE PROVIDED ALONG STREAMS, RIVERS, AND PONDS TO AVOID EROSION OF BANKS.
20. ALL TREES DESIGNATED TO REMAIN, MUST BE PROTECTED. HEAVY EQUIPMENT SHOULD NOT BE OPERATED OR STORED, NOR MATERIALS HANDLED OR STORED, WITHIN THE DRIP LINES OF TREES.
21. SEDIMENT MUST BE REMOVED FROM SEDIMENT BARRIERS, PONDS, AND OTHER SEDIMENT CONTROLS WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%
22. SEDIMENT THAT HAS ESCAPED THE CONSTRUCTION SITE AND HAS COLLECTED IN THE STREET OR DRAINAGE STRUCTURES MUST IMMEDIATELY BE PHYSICALLY REMOVED.
23. BUILDING AND WASTE MATERIALS, AND NON STORM WATER DISCHARGES, SUCH AS CONCRETE, PAINT WASH WATER, OR MACHINERY LEAKAGE, OR SPILLAGE MUST BE MANAGED TO PREVENT THEM FROM ENTERING THE STORM WATER SYSTEM, GROUND WATER, OR NEARBY WATER BODY.
24. ALL EPSCS HAVE BEEN DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 2 YEAR, 24 HOUR STORM EVENT.
25. TEMPORARY SEEDING FOR TENNESSEE PROJECTS INCLUDE THE FOLLOWING OPTIONS:
    - JAN 1 – MAY 1: ITALIAN RYE / KOREAN LESPEDEZA / SUMMER OATS
    - MAY 1 – JULY 15: SUDAN OR STARR MILLET
    - JULY 15 – JAN 1: BALBOA RYE / ITALIAN RYE
26. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT THE RATE OF 2 TONS/ACRE
27. UPON COMPLETION OF SITE STABILIZATION, THE OWNER AND CONTRACTOR SHALL PROVIDED A NOTICE OF TERMINATION (NOT) FOR THE PROJECT TO THE LOCAL ENVIRONMENTAL ASSISTANCE CENTER. A COPY OF THE NOT SHALL BE PROVIDED TO THE ENGINEER.
28. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION CONTROL INSPECTIONS AND REPAIRS FOR A MINIMUM OF 3 YEARS AFTER COMPLETION OF CONSTRUCTION.
29. TOPSOIL SHALL BE PLACED ON EXCAVATED AREAS WHICH REQUIRE NEW VEGETATION. GROUND COVER SHALL BE REESTABLISHED WITH KENTUCKY 31 FESCUE SEEDED AT A MINIMUM OF 250 LBS. PER ACRE WITHIN 72 HOURS OF FINAL GRADING. SLOPES 3:1 OR GREATER, AND AREAS INDICATED ON PLANS, SHALL BE LINED WITH NORTH AMERICAN GREEN S150 GRASS MATTING OR EQUAL. SOD MAY BE SUBSTITUTED FOR MATTING OR SEED & STRAW AREAS.
30. SILT FENCE SHALL BE INSTALLED IN ALL EROSION AREAS WHICH COULD ALLOW UNTREATED STORMWATER RUNOFF TO BE DISCHARGED FROM THE PROPERTY. ALL EROSION CONTROL MEASURES SHALL BE CONSISTENT WITH THE PROVISIONS DESCRIBED IN THE MOST CURRENT EDITION OF THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK.
31. SILT BARRIERS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 1/3 FILLED.
32. ALL LOCATIONS OF TEMPORARY EROSION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER.
33. WHEN THE TEMPORARY EROSION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE THEY SHALL BE REMOVED.
34. REPLACE DAMAGED AND WORN OUT SILT BARRIERS AS DIRECTED BY THE CITY/ENGINEER.
35. PROVIDE TEMPORARY SEEDING ON STOCKPILES AND ALL OTHER AREAS OF THE SITE THAT WILL REMAIN UNDISTURBED FOR 14 DAYS OR MORE.
36. I CERTIFY THAT THESE PLANS HAVE BEEN PREPARED BY ME AND/OR UNDER MY DIRECT SUPERVISION. THIS PROJECT IS PLANNED TO DISTURB MORE THAN ONE ACRE, IT THEREFORE FALLS UNDER THE TENNESSEE DIVISION OF WATER POLLUTION CONTROL'S GENERAL NPDES PERMIT TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. KLOBER ENGINEERING SERVICES WILL ASSIST THE CONTRACTOR IN SUBMITTING THE 'NOTICE OF INTENT (NOI) TO CONSTRUCT' TO THE STATE AT LEAST 30 DAYS PRIOR TO BEGINNING LAND DISTURBANCE. THE TN GENERAL CONSTRUCTION PERMIT IS TNR243625.

(signature) JOSHUA M. LYON, P.E., PROJECT ENGINEER

11/03/23 DATE

LANDSCAPE NOTES:

1. PLANT TYPES FOR ALL AREAS OTHER THAN THE BIORETENTION ARE AT THE DISCRETION OF THE OWNER. SEVERAL NATIVE VARIETY SHALL BE USED.
2. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND TAKE PRECAUTIONS TO PREVENT DAMAGE TO THESE UTILITIES.
3. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE TO UTILITIES.
4. ALL PLANTING BEDS OR MULCH BEDS SHALL BE SPRAYED WITH WEED-KILLER/HERBICIDE OR HAND WEEDED (CONTRACTOR'S OPTION) PRIOR TO THE INSTALLATION OF MULCH OR STONE COVER.
5. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS. INSURE POSITIVE DRAINAGE OF LANDSCAPE BERMS.
6. ALL PLANTING AREAS SHALL BE FERTILIZED WITH 12 lbs./1000 S.F. OF 10-10-10 FERTILIZER.
7. ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF PINE BARK MULCH OR STONE AS SPECIFIED BY OWNER.
8. THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL MATERIAL TYPES AND QUANTITIES WITH THE OWNER.
9. THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH WRITTEN INSTRUCTIONS ON THE PROPER CARE OF ALL SPECIFIED PLANT MATERIALS PRIOR TO FINAL PAYMENT.
10. ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED AND STRAWED.
11. INSTALL EROSION CONTROL MATTING ON ALL SLOPES GREATER THAN 3:1, DITCH LINE AND WHERE SHOWN ON THE STABILIZATION PLAN.
12. GROUND COVER, WHEN USED, SHOULD EXTEND UNDER SHRUBS AND TREES.
13. NO TREES SHALL BE PLANTED WITHIN THE 40 FT. SIGHT TRIANGLE AT THE ENTRANCE. ALL SHRUBS MUST BE MAINTAINED AT A MAXIMUM HEIGHT OF 2 1/2'.
14. SPREADING SHRUB SPECIES SHALL BE 18 INCH MINIMUM SPREAD & 3 GAL TRUNK.
15. STREET TREE CALIPERS SHALL BE 2 INCH MINIMUM.
16. ONLY GRADE "A" PLANT MATERIAL WILL BE ACCEPTED. INFERIOR/DAMAGED PLANT MATERIAL WILL BE REJECTED. ALL PLANT MATERIAL MUST COMPLY WITH CURRENT ANSI NURSERY STOCK STANDARDS.
17. VOID AREAS BETWEEN TREES AND SHRUBS MAY BE INTERSPERSED WITH PERENNIALS SUCH AS MARSH MILKWEED, SLENDER MOUNTAIN MINT, LYRE-LEAF SAGE, OR GRAY GOLDENROD.

LEGEND:

EXISTING SYMBOLS

- PP EXISTING POWER POLE
- LP EXISTING LIGHT POLE
- WP EXISTING WALL PACK LIGHT
- SS EXISTING SANITARY SEWER BOX
- EXISTING SANITARY SEWER MANHOLE
- EXISTING PRESSURE SEWER VALVE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING AIR RELEASE
- EXISTING BLOW OFF
- EXISTING HEADWALL
- PROPOSED HANDICAP SYMBOL

PROPOSED SYMBOLS

- PP PROPOSED POWER POLE
- LP PROPOSED LIGHT POLE
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- SS PROPOSED SANITARY SEWER BOX
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- PROPOSED WATER VALVE
- PROPOSED AIR RELEASE
- PROPOSED BLOW OFF
- PROPOSED HEADWALL
- PROPOSED HANDICAP SYMBOL
- PROPOSED WHEEL STOP
- PROPOSED SIGN
- PROPOSED FLOW ARROW / DOWNHILL SLOPE DIRECTION
- xx.xx PROPOSED SPOT ELEVATION
- INV. xx.xx PROPOSED PIPE INVERT
- TW. xx.xx TOP OF WALL ELEVATION
- BW. xx.xx BOTTOM OF WALL ELEVATION @ FINISHED GRADE

PROPOSED CURB INLET: SINGLE, DOUBLE, TRIPLE

PROPOSED CATCH BASIN: SINGLE, DOUBLE, TRIPLE

INTERMEDIATE EPSC WEIGHTED SEDIMENT TUBE

PROPOSED TRAFFIC FLOW ARROWS: STRAIGHT, TURN ONLY, STRAIGHT & TURN

PROPOSED STABILIZATION: SOD, MATTING, SEED & STRAW, RIP RAP, MULCH

EXISTING LINE TYPES

- DEMO LINE
- EXISTING CONTOURS MINOR 1' INTERVAL
- EXISTING CONTOURS MAJOR 5' INTERVAL
- EXISTING COMMUNICATIONS OVERHEAD
- EXISTING COMMUNICATIONS UNDERGROUND
- EXISTING PUDE
- EXISTING EASEMENTS WATER & SEWER
- EXISTING ELECTRIC OVERHEAD
- EXISTING ELECTRIC UNDERGROUND
- EXISTING FIBER OPTIC
- EXISTING FENCE
- EXISTING GAS
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING GRAVEL/RIP RAP
- EXISTING PROPERTY LINE
- EXISTING PROPERTY LINE ADJACENT
- EXISTING RAILROAD
- EXISTING SEWER LINE
- EXISTING FORCE MAIN
- EXISTING SEWER SERVICE
- EXISTING WATER LINE
- EXISTING WATER SERVICE
- EXISTING SETBACKS
- EXISTING STORM SEWER

PROPOSED LINE TYPES

- PROPOSED CONTOURS MINOR 1' INTERVAL
- PROPOSED COMMUNICATIONS OVERHEAD
- PROPOSED COMMUNICATIONS UNDERGROUND
- PROPOSED PUDE
- PROPOSED EASEMENTS WATER & SEWER
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- PROPOSED FENCE
- PROPOSED GAS
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED GRAVEL/RIP RAP
- PROPOSED PROPERTY LINE
- PROPOSED EXTRUDED/POST CURB
- PROPOSED CURB AND GUTTER
- PROPOSED RETAINING WALL
- PROPOSED SEWER LINE
- PROPOSED FORCE MAIN
- PROPOSED SEWER SERVICE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED SETBACKS
- PROPOSED STORM SEWER
- PROPOSED SILT FENCE
- PROPOSED GUARD RAIL
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED REVISION CLOUD

LEGEND NOTES:

1. SCALES OF HATCHING WILL VERY FROM LEGEND DUE TO SCALE OF SHEETS
2. LINE THICKNESS WILL VERY FROM SHEET TO SHEET. THICKER LINE WEIGHT IS USE TO EMPHASIZE THE MOST RELEVANT INFORMATION ON EACH SHEET.

JOSHUA M. LYON REGISTERED ENGINEER AGRICULTURE COMMERCE NO. 112331 STATE OF TENNESSEE 11/03/23

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COOPERTOWN BASEBALL FIELD

Project No. | Issue Date | Drawn By | Revision Date | Revision Date | Revision Date

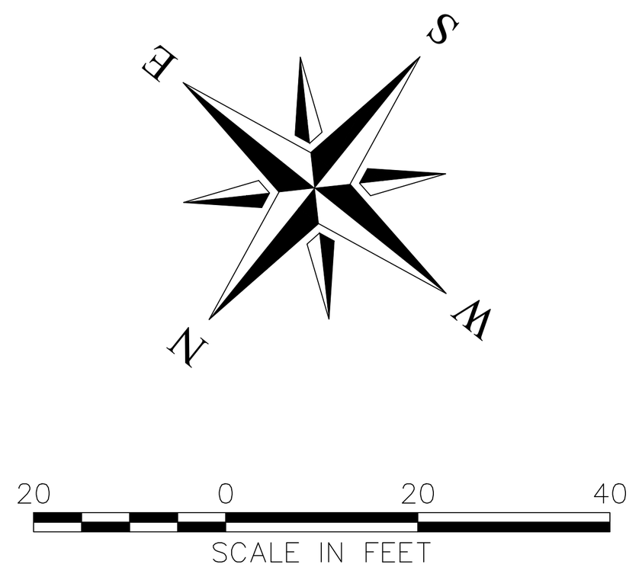
NOTE
SHEET NO.

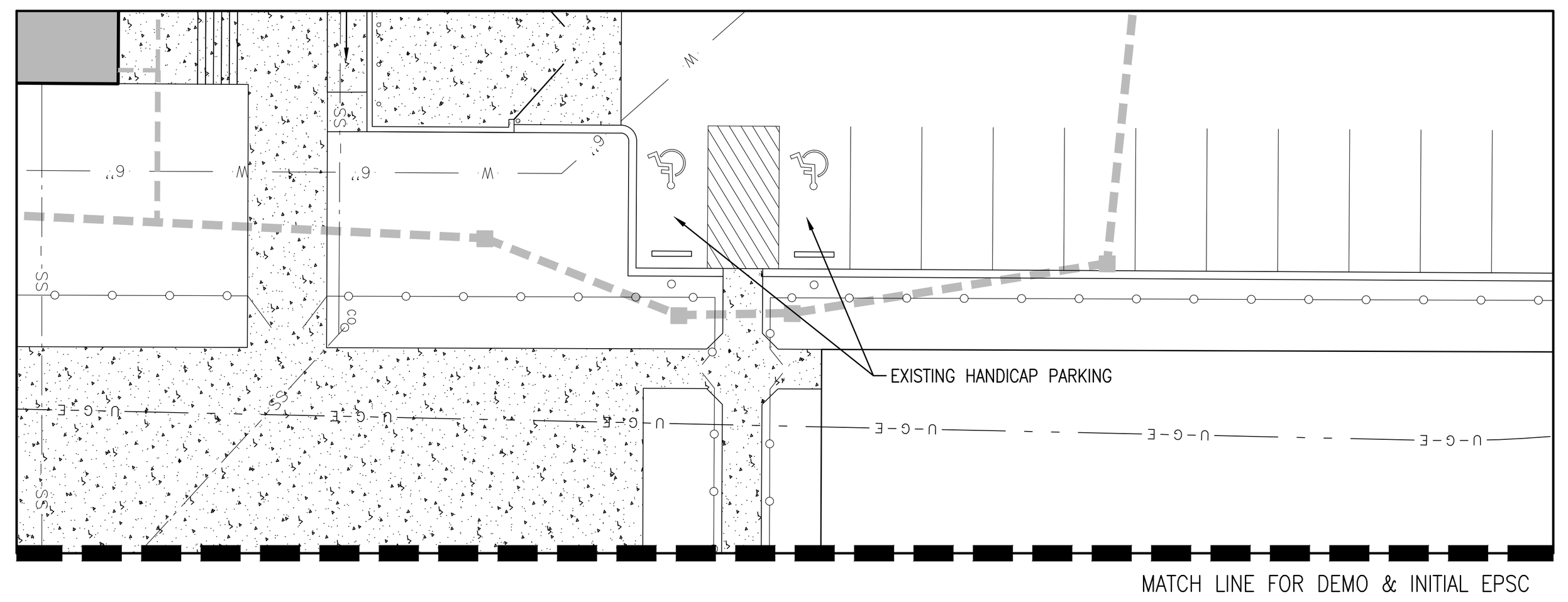
CALL BEFORE YOU DIG

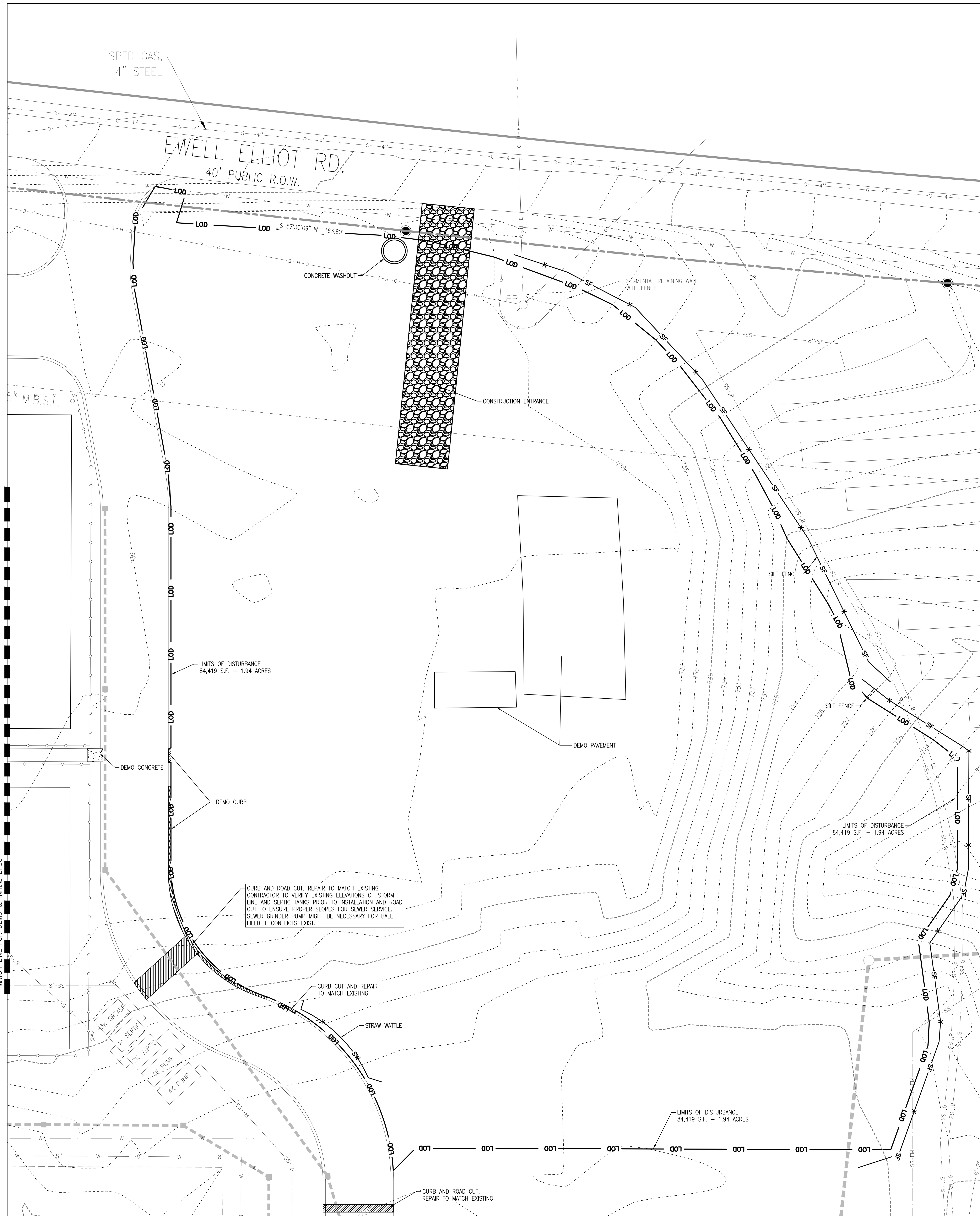
811 CALL 811 NATIONWIDE

Know what's below. Call before you dig.

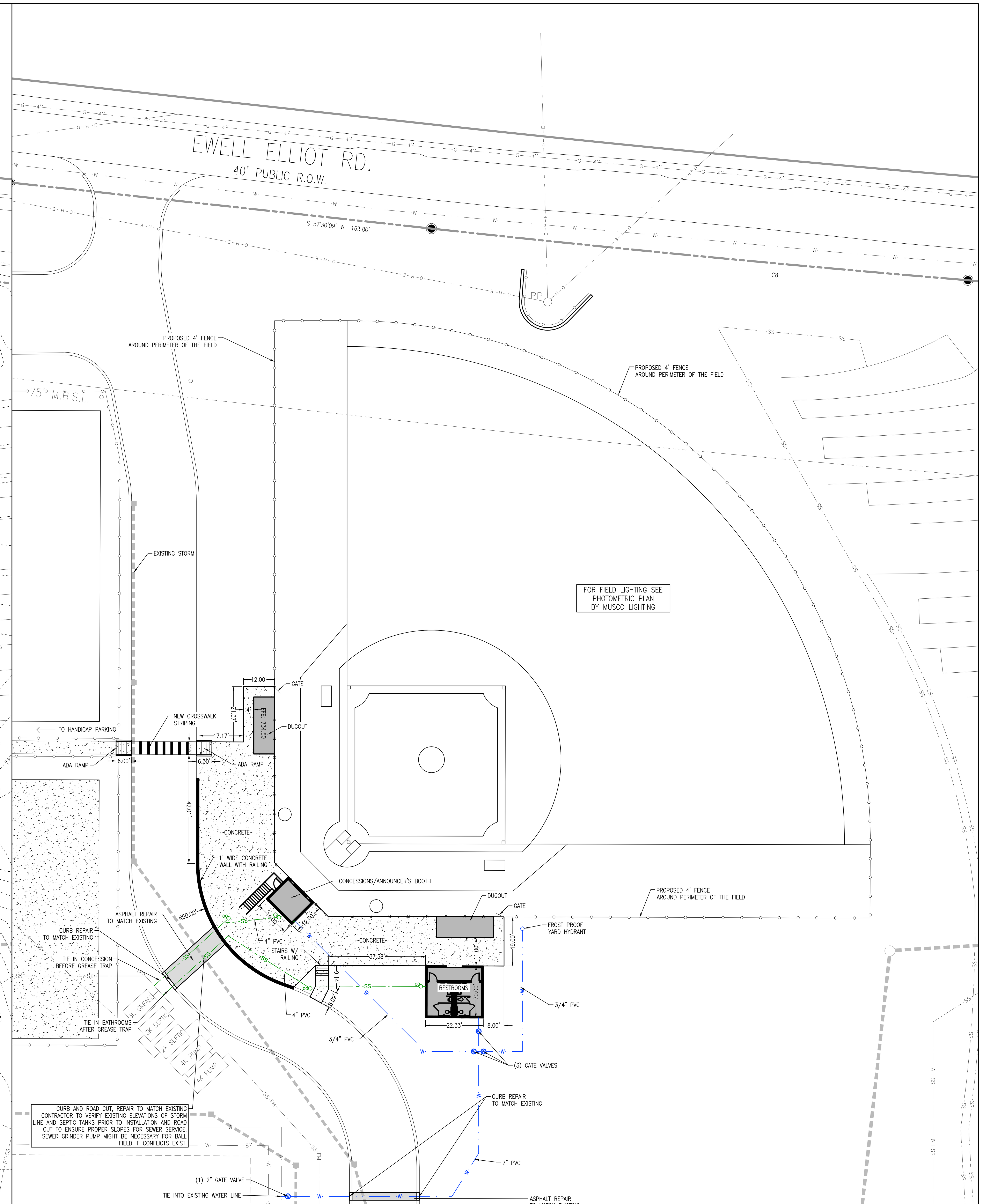
IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.







DEMO & INITIAL EPSC



SITE LAYOUT

JOSHUA M. LYON, P.E. TN#112331

STATE OF TENNESSEE

11/03/23

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COOPERTOWN BASEBALL FIELD

C1.01

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811
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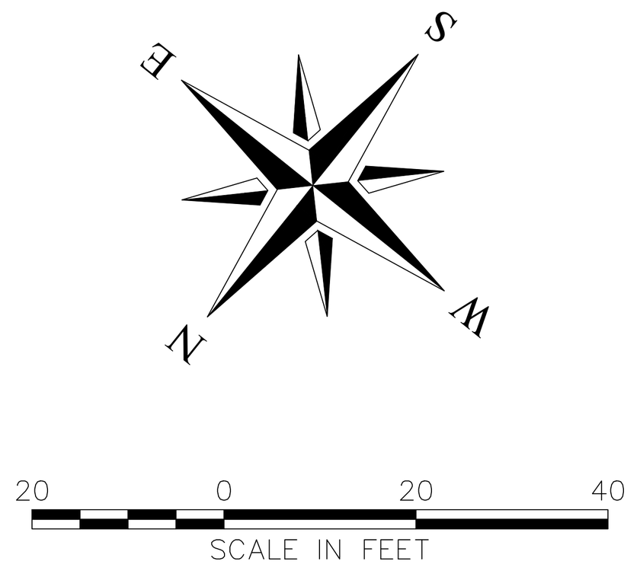
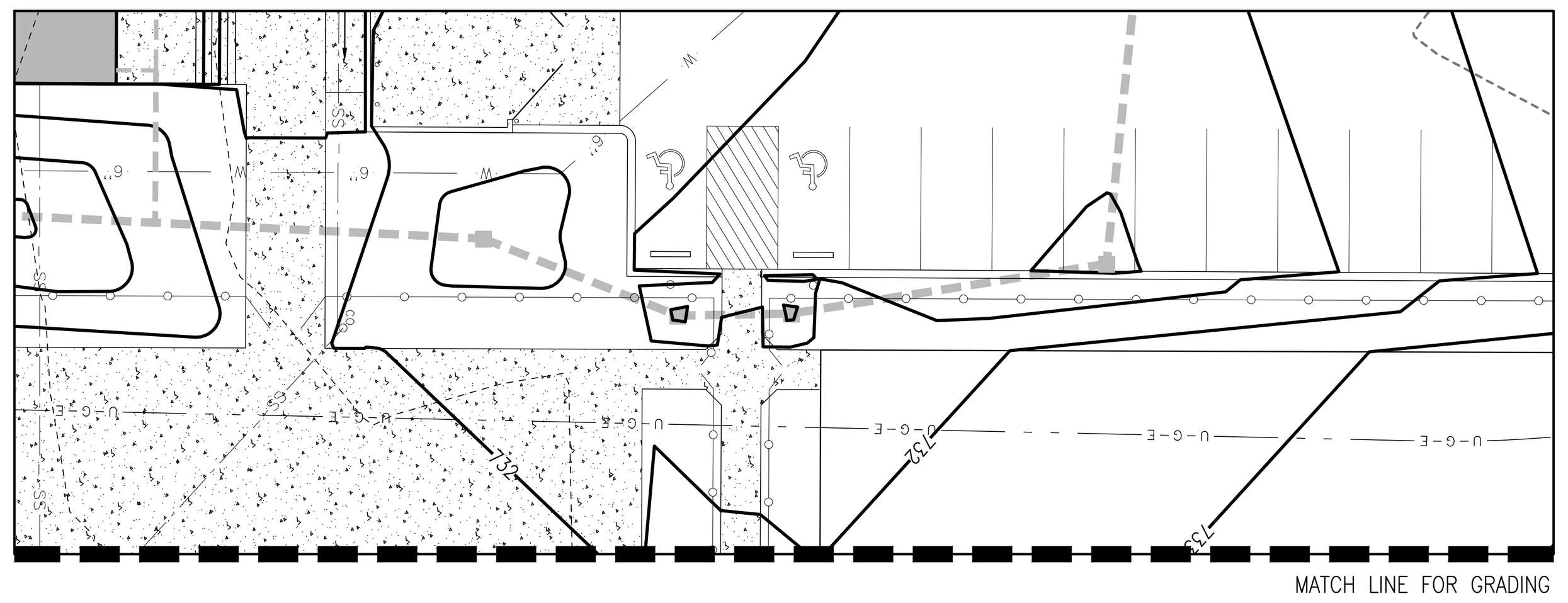
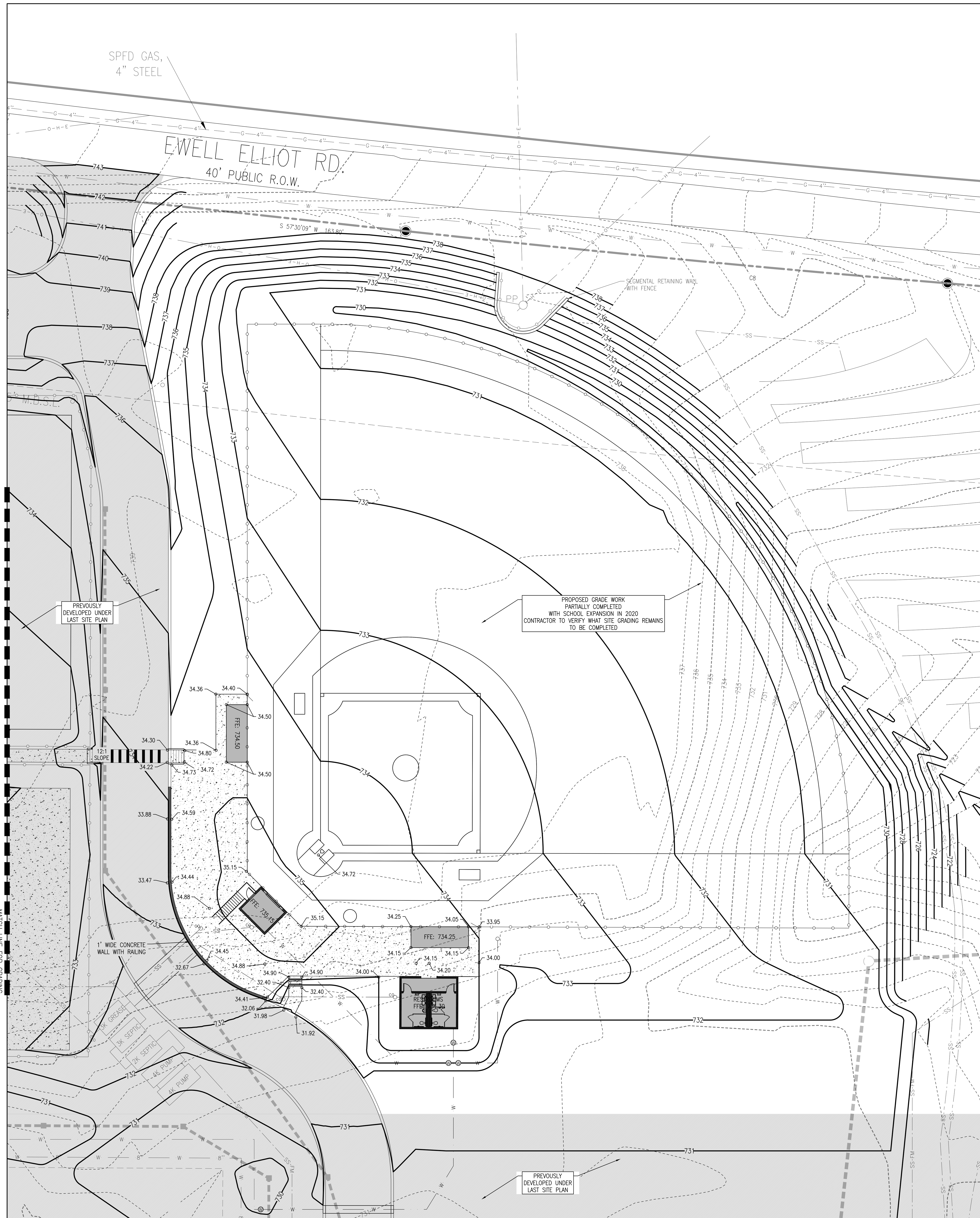
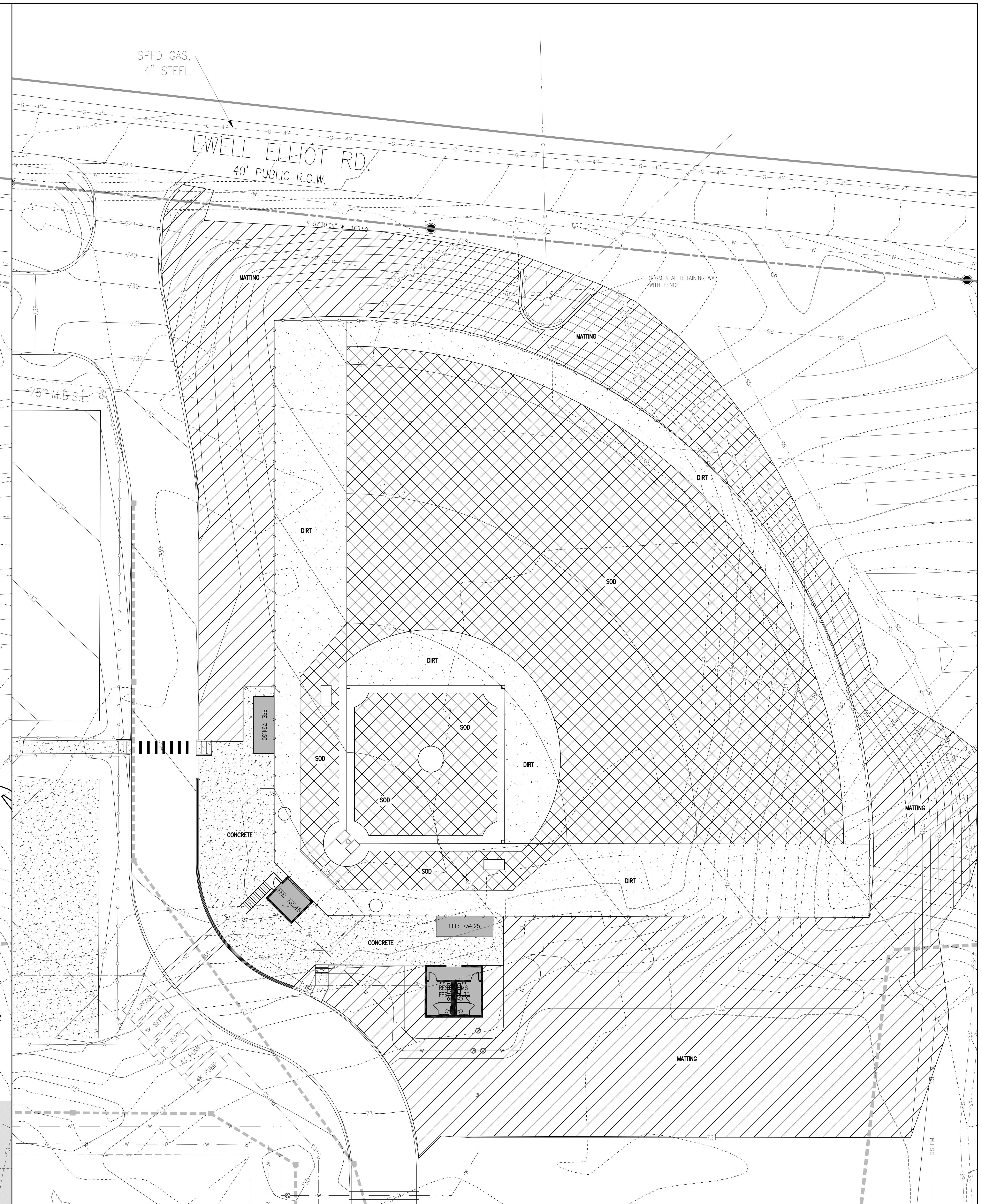






GRADING PLAN



FINAL STABILIZATON

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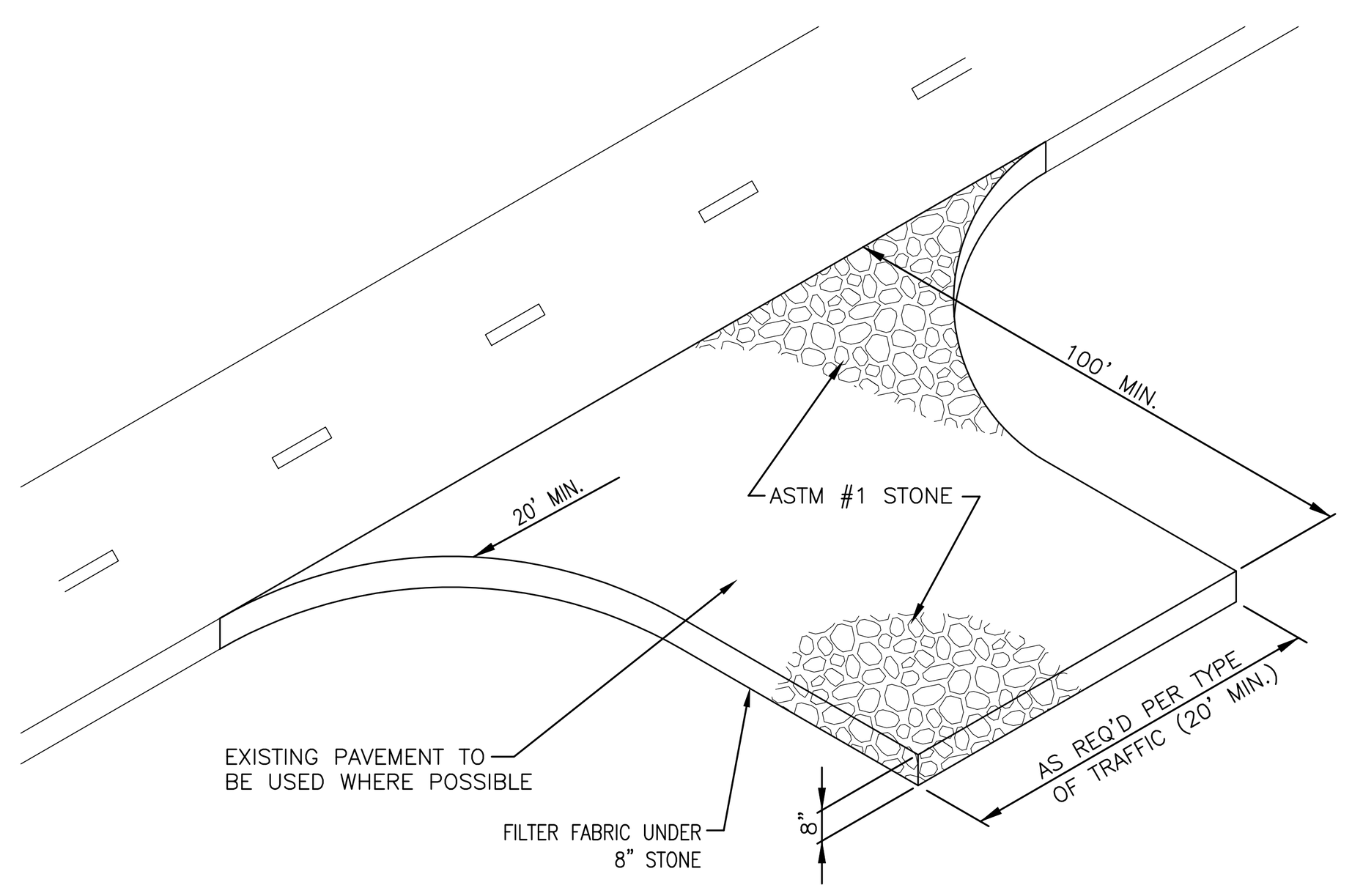
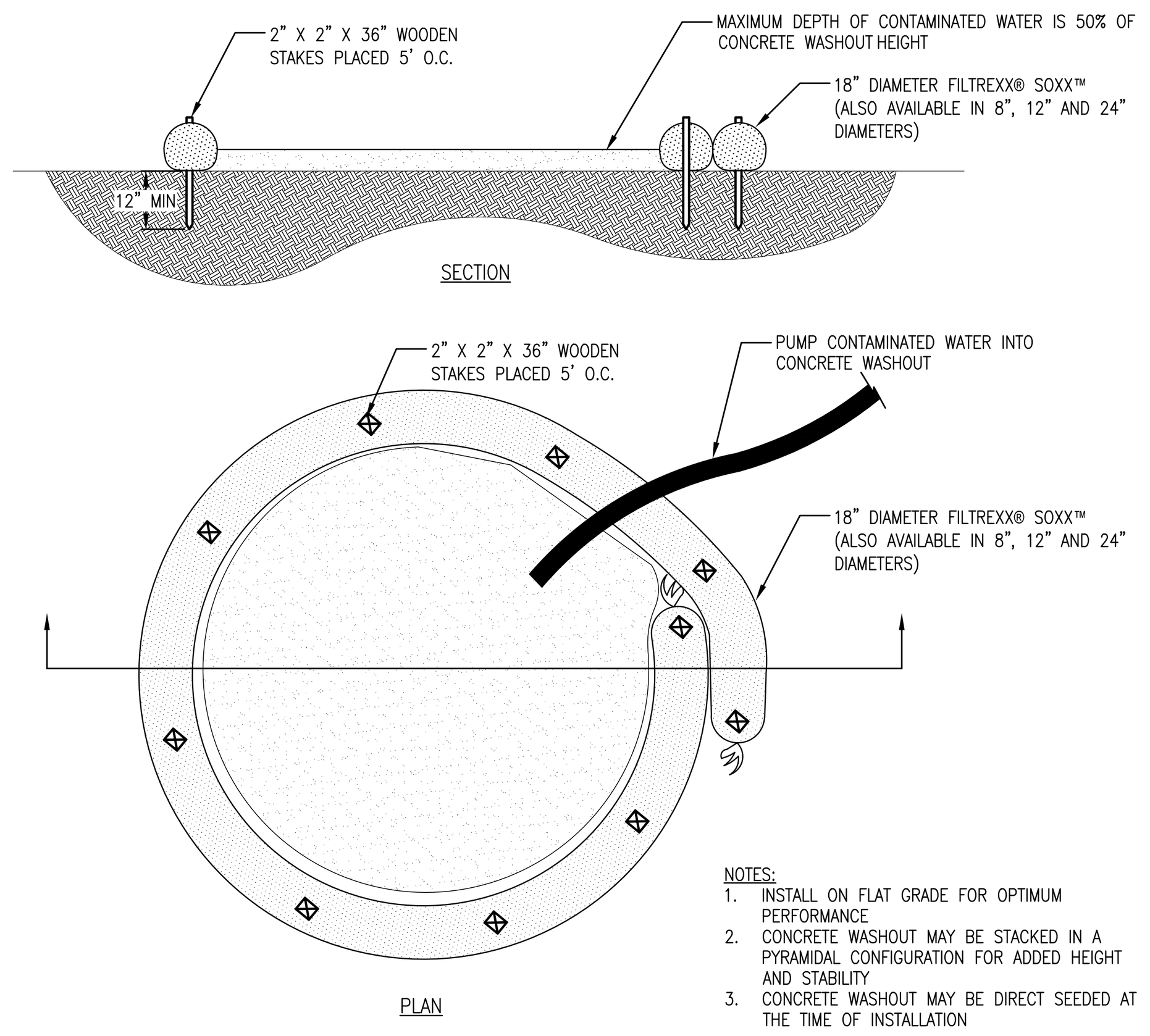
COOPERTOWN BASEBALL FIELD

C1.02
SHEET NO.



TEMPORARY CONSTRUCTION ENTRANCE DETAIL

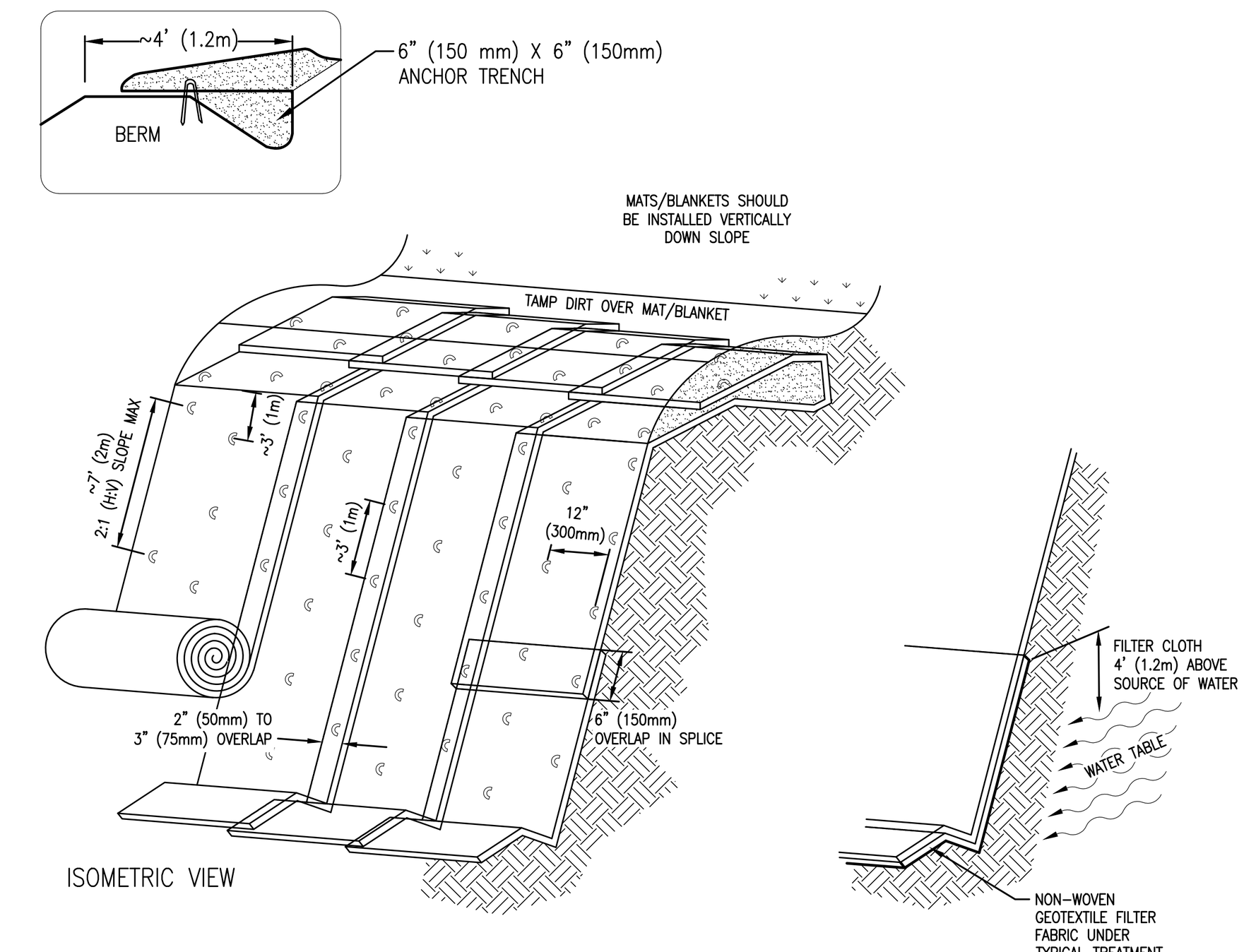
NOT TO SCALE   METRO STORMWATER MANAGEMENT MANUAL TCP-03



NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. CONCRETE WASHOUT MAY BE STACKED IN A PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT AND STABILITY
3. CONCRETE WASHOUT MAY BE DIRECT SEEDED AT THE TIME OF INSTALLATION

FILTREXX® CONCRETE WASHOUT

NOT TO SCALE



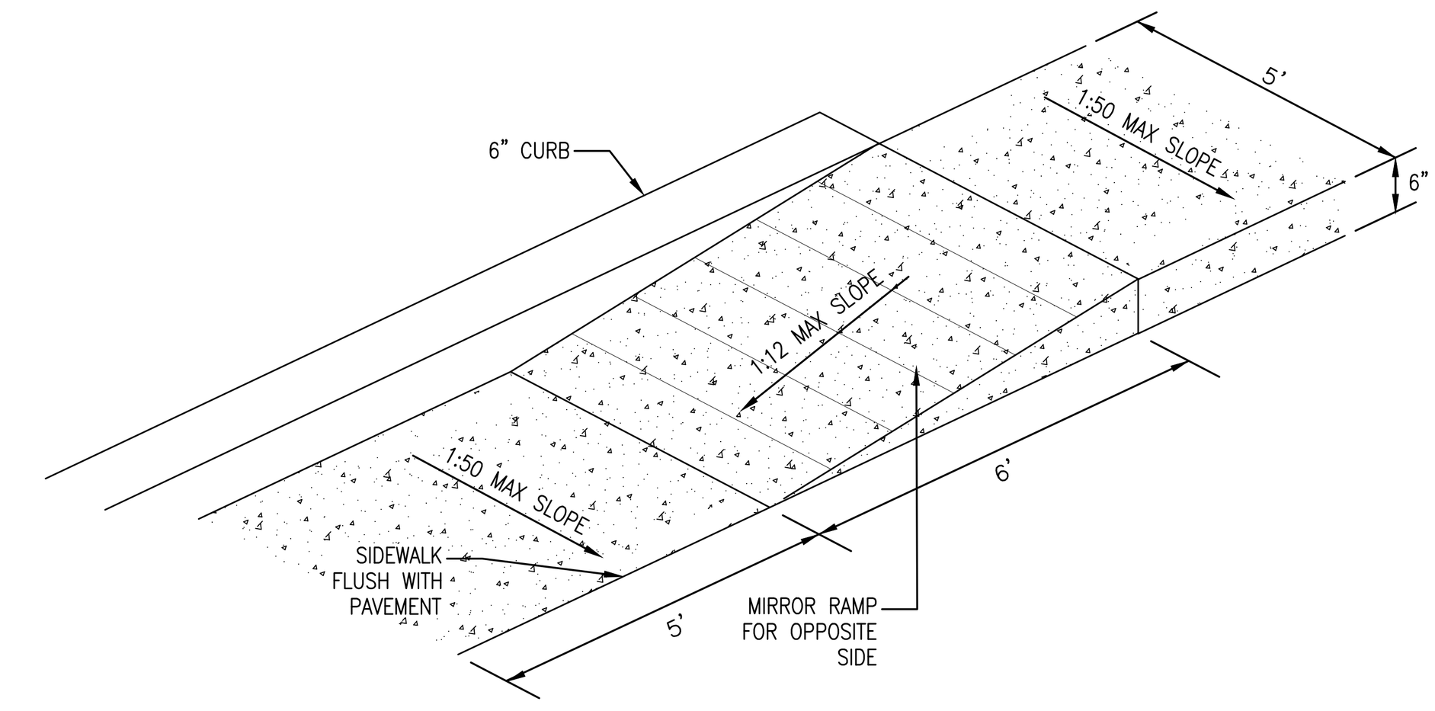
TYPICAL SLOPE SOIL STABLIZATION
N.T.S.

WET SLOPE LINING
N.T.S.

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, SOIL CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

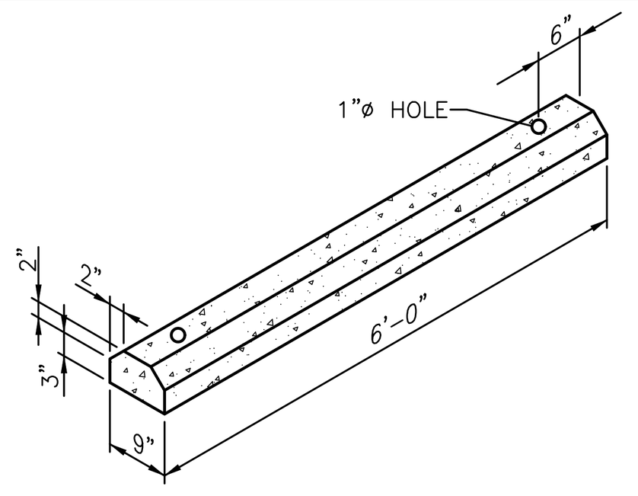
GRASS MATTING PLACEMENT

METRO STORMWATER MANAGEMENT MANUAL PESC-02



HANDICAP RAMP

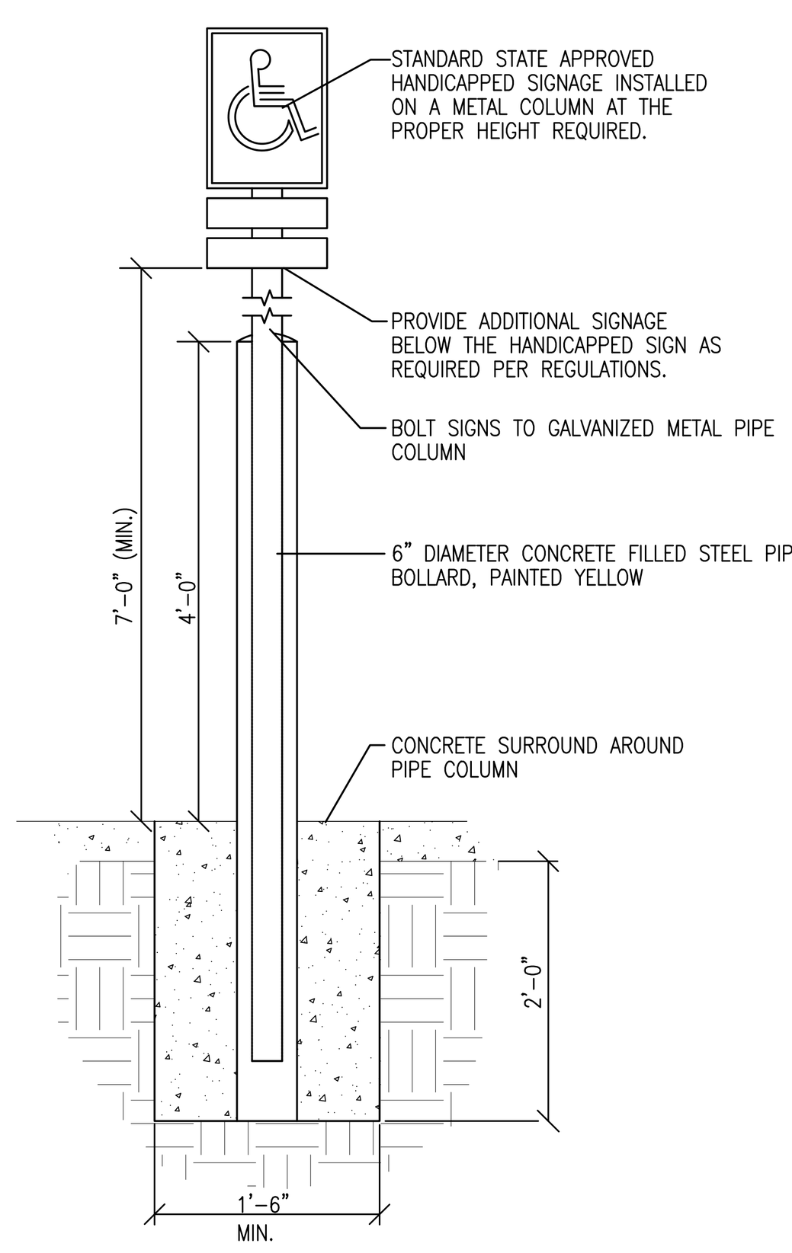
NOT TO SCALE



REQUIRES 2, 5/8" X 2'0" STEEL BAR STAKES FOR EACH CURB SECTION. CURB REINF. W/2 #3 BARS. LOCATE WHEEL STOP 2' FROM FACE OF SIDEWALK HEADER OR EDGE OF PAVEMENT.

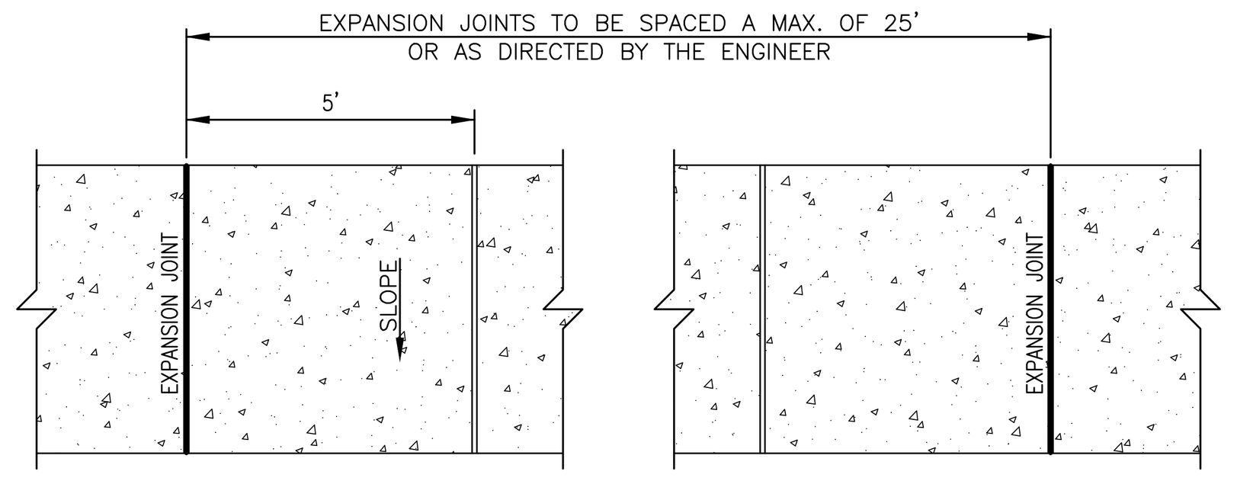
TYPICAL PARKING CURB

NOT TO SCALE



EXTERIOR HANDICAPPED SIGN

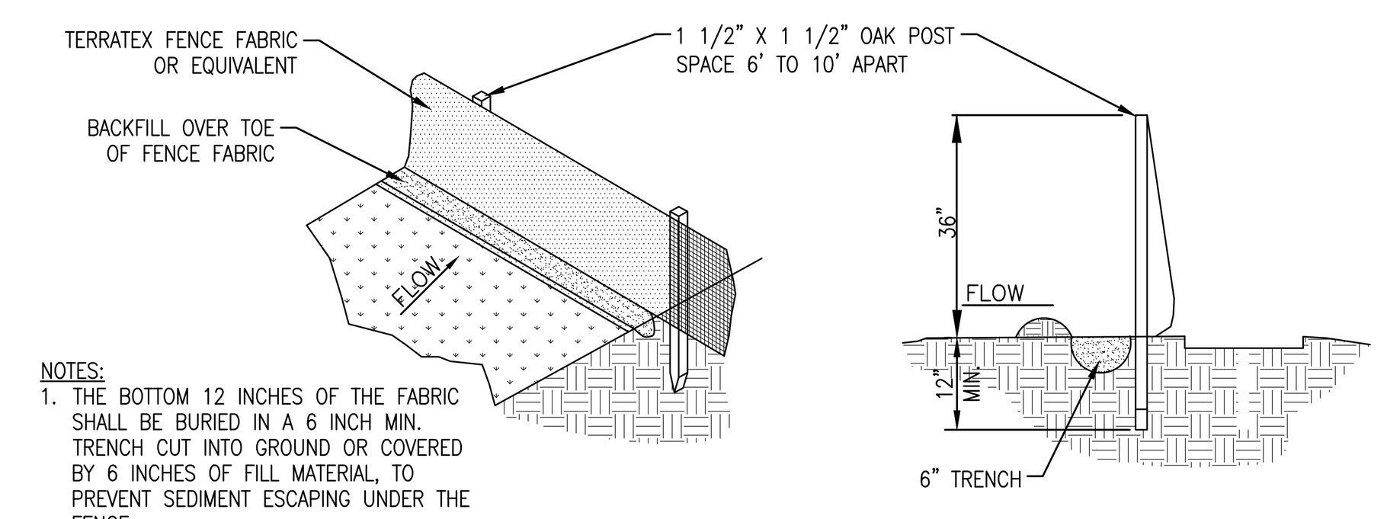
NOT TO SCALE



GENERAL NOTES:
1. SIDEWALKS SHALL BE A MIN. OF 4" IN THICKNESS AND MAINTAIN A MIN. OF 3' CLEARANCE THROUGH THE PATH
2. MAXIMUM CROSS SLOPE FOR SIDEWALKS SHALL BE 1:48 (VERTICAL:HORIZONTAL).

TYPICAL CONCRETE SIDEWALK

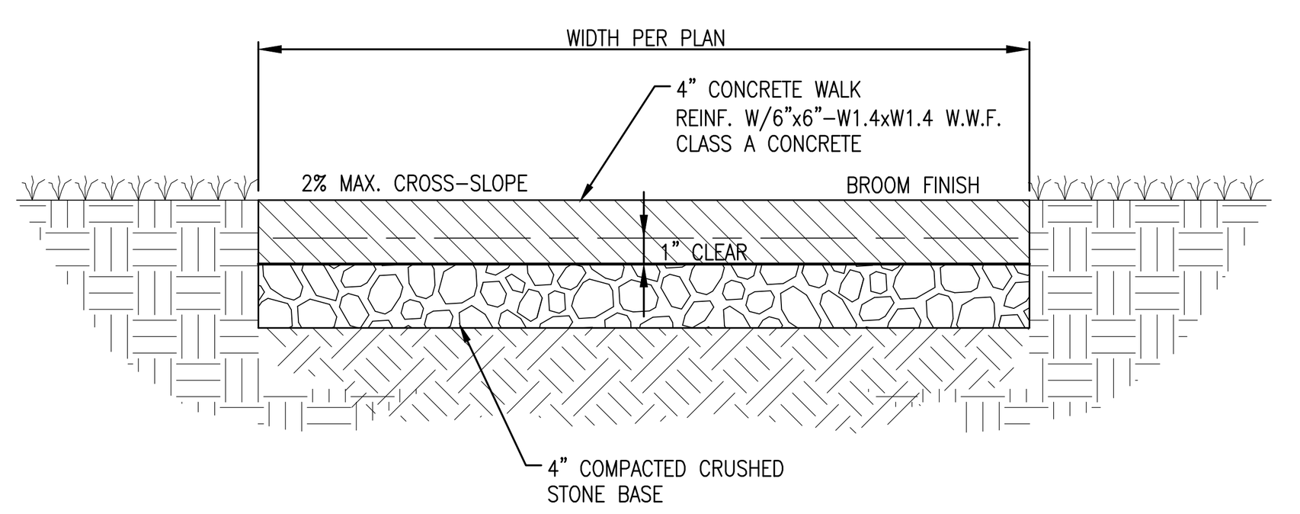
NOT TO SCALE



NOTES:
1. THE BOTTOM 12 INCHES OF THE FABRIC SHALL BE BURIED IN A 6 INCH MIN. TRENCH CUT INTO GROUND OR COVERED BY 6 INCHES OF FILL MATERIAL, TO PREVENT SEDIMENT ESCAPING UNDER THE FENCE.
2. SILT FENCE SHALL REMAIN IN PLACE UNTIL GROUND COVER HAS BEEN ESTABLISHED.

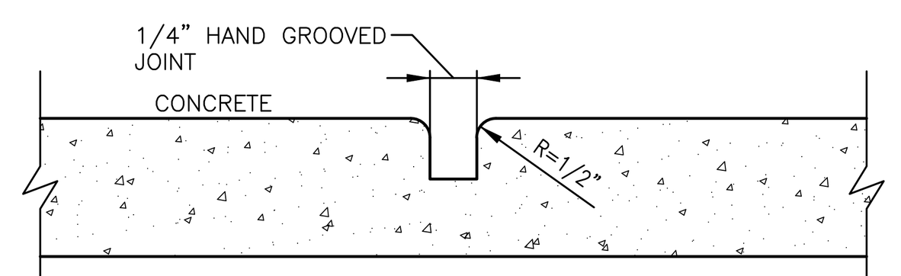
SILT CONTROL FENCE

NOT TO SCALE
METRO STORMWATER MANAGEMENT MANUAL TCP-13



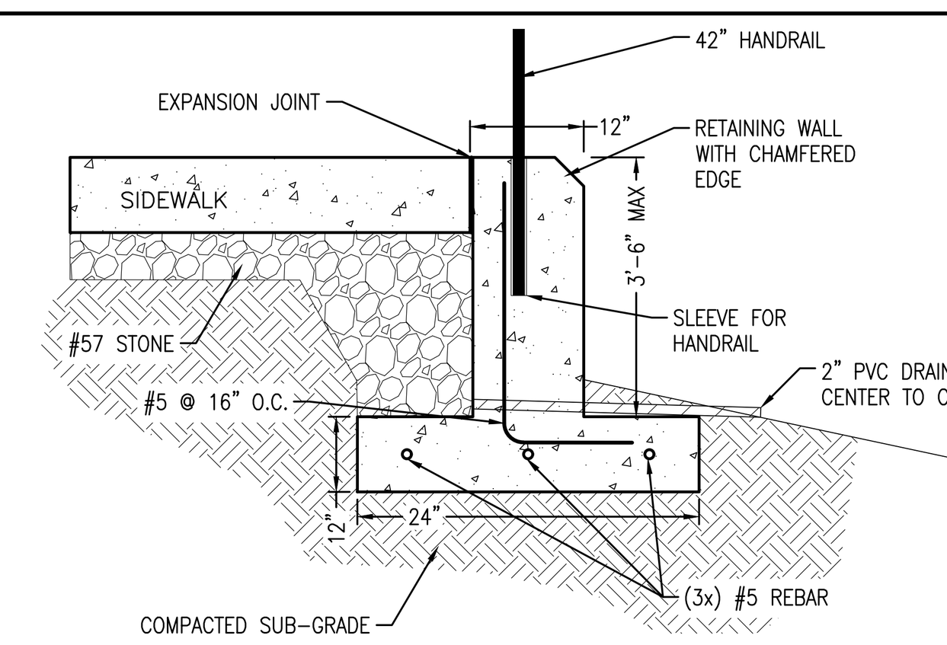
CONCRETE SIDEWALK CROSS SECTION

NOT TO SCALE



CONTROL JOINT

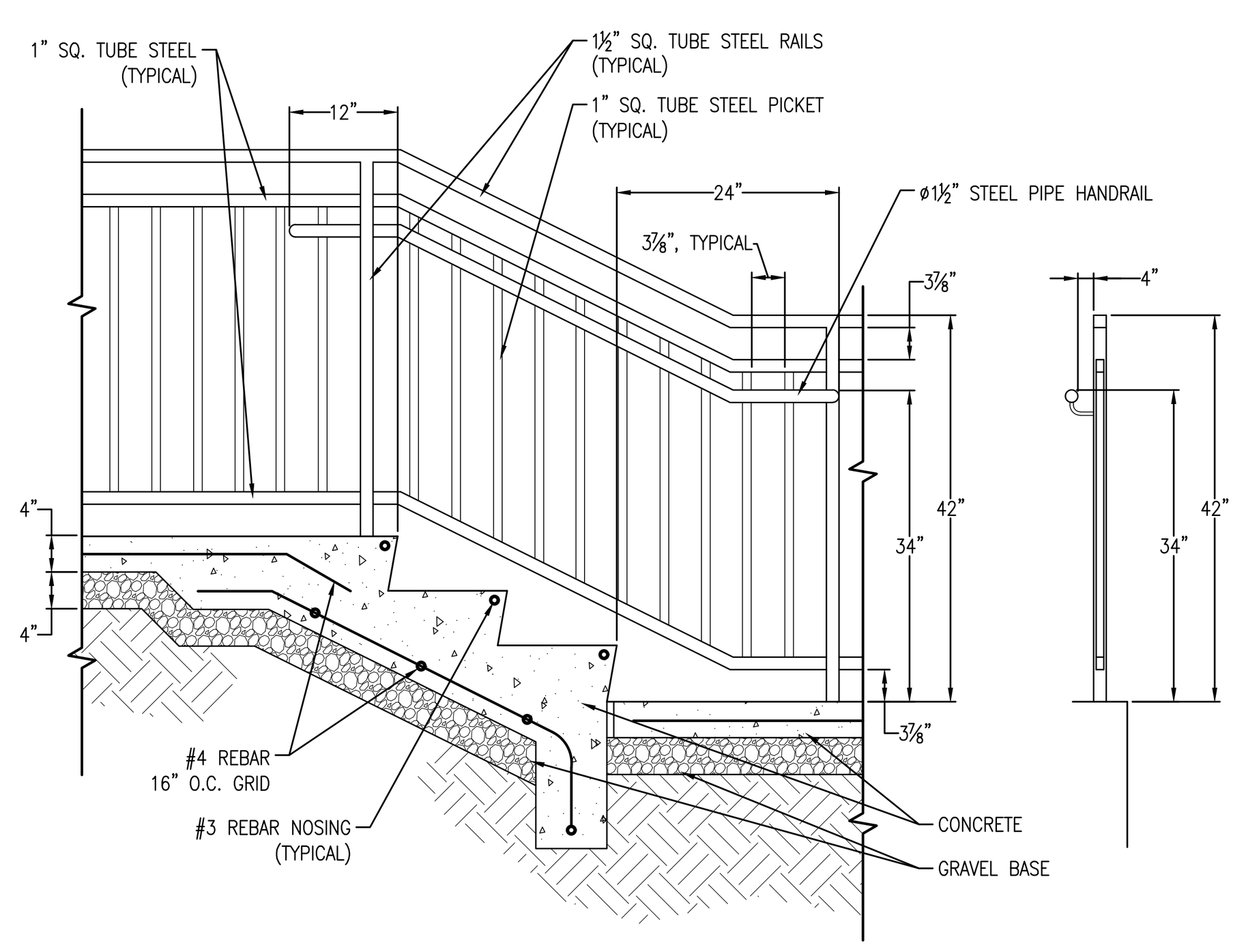
NOT TO SCALE



NOTES:
1: ALL STEEL TO BE GRADE 60
2: ALL STEEL TO HAVE 2" COVER
3: CONCRETE TO HAVE MIN. STRENGTH OF 3,500 PSI @ 28 DAYS
4: BEARING SOIL MUST HAVE A MINIMUM STRENGTH OF 3,000 P.S.F.
5: FOUNDATION & BACKFILL SOIL SHALL HAVE A MIN. ANGLE OF FRICTION OF 28° w/ MIN. COHESION OF 25 P.S.F.

FILL RETAINING WALL WITH SIDEWALK

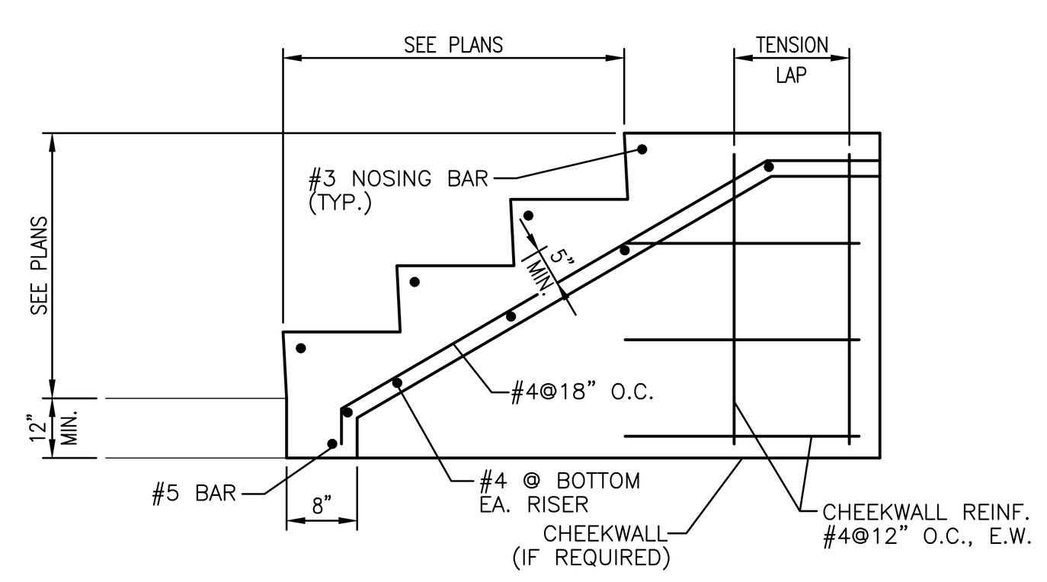
NOT TO SCALE



STAIR & HANDRAIL DETAIL

NOT TO SCALE

COORDINATE RAILING W/ ARCH PLANS



TYPICAL STAIR DETAIL

NOT TO SCALE

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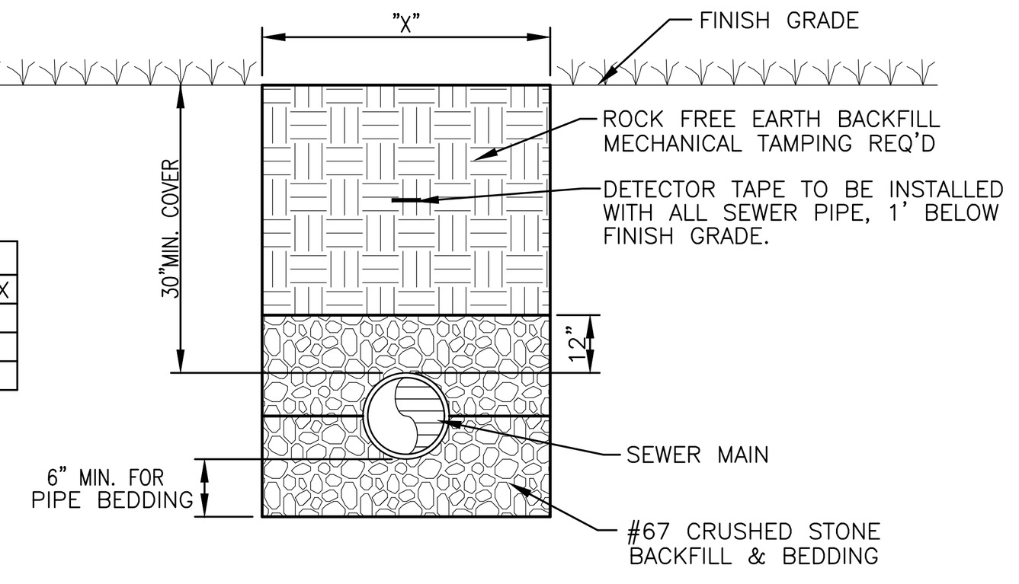
COOPERTOWN BASEBALL FIELD

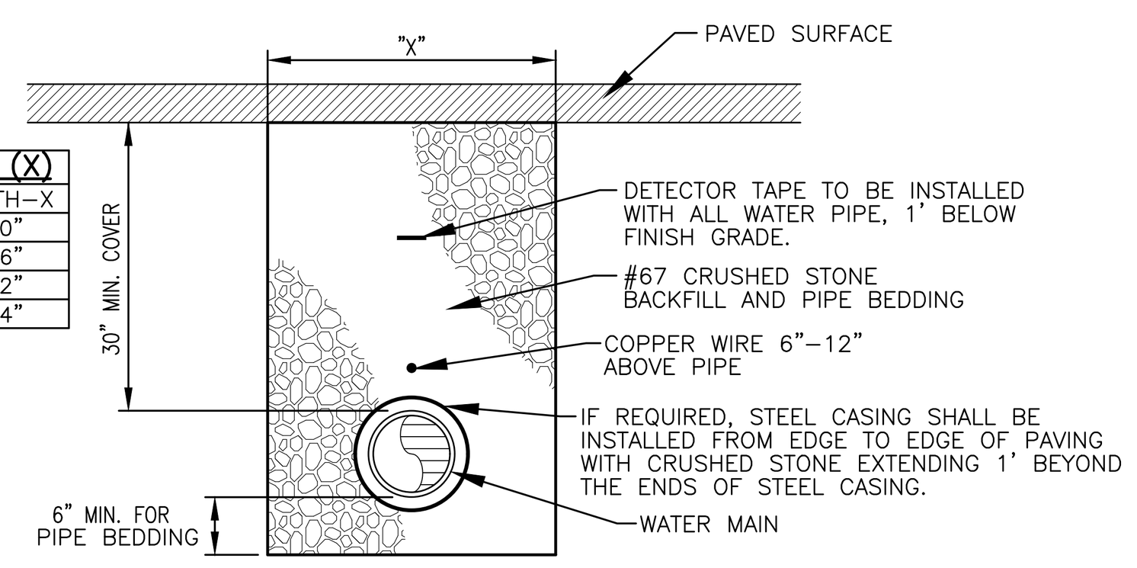
Project No.
Issue Date
Drawn By
Revision Date
Revision Date
Revision Date

C2.01
SHEET NO.



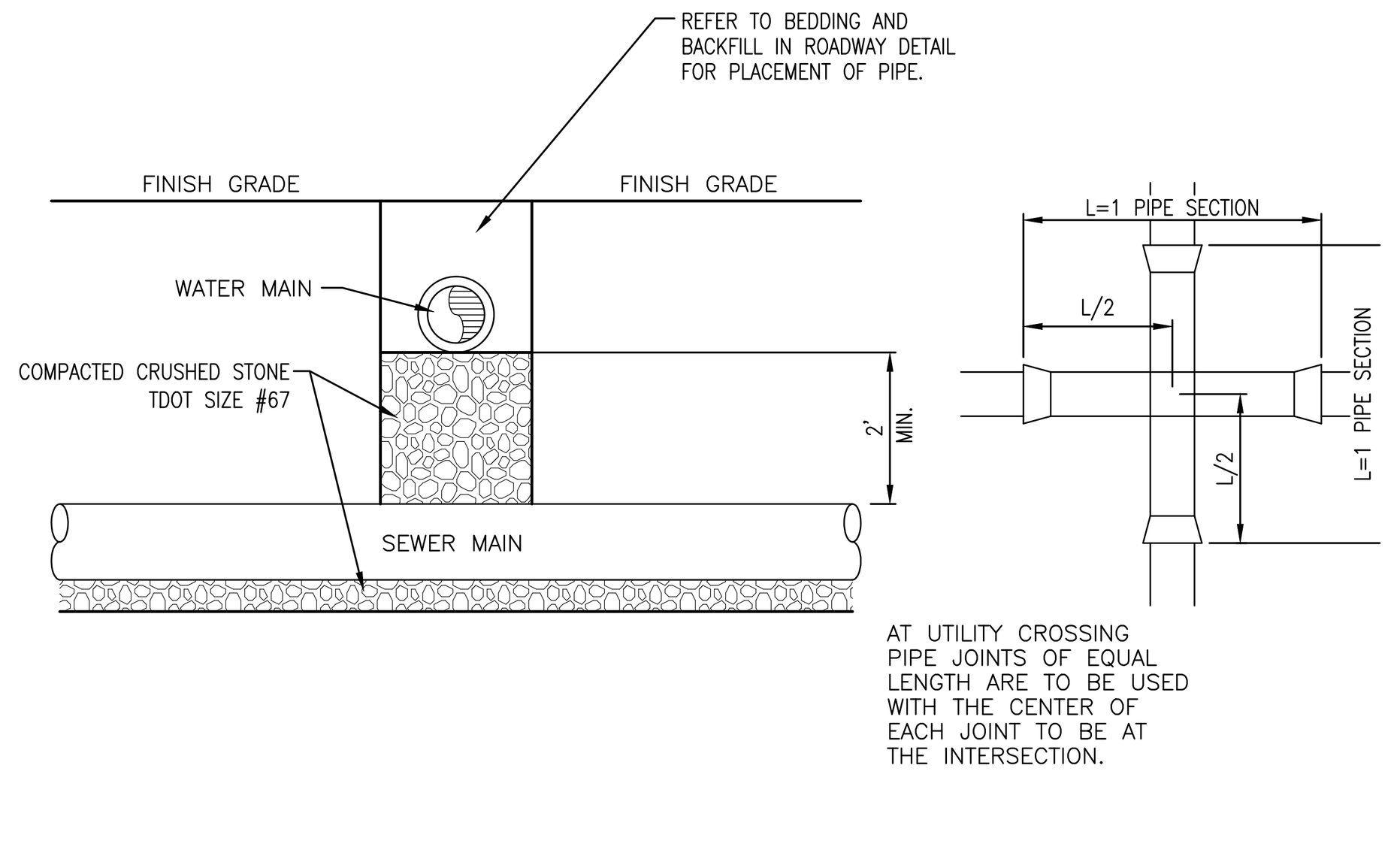
TRENCH WIDTH (X)	
PIPE SIZE	BUCKET WIDTH–X
6"	18"
8"	24"
10"	30"

TYPICAL BEDDING & BACKFILL OUTSIDE ROADWAY
NOT TO SCALE



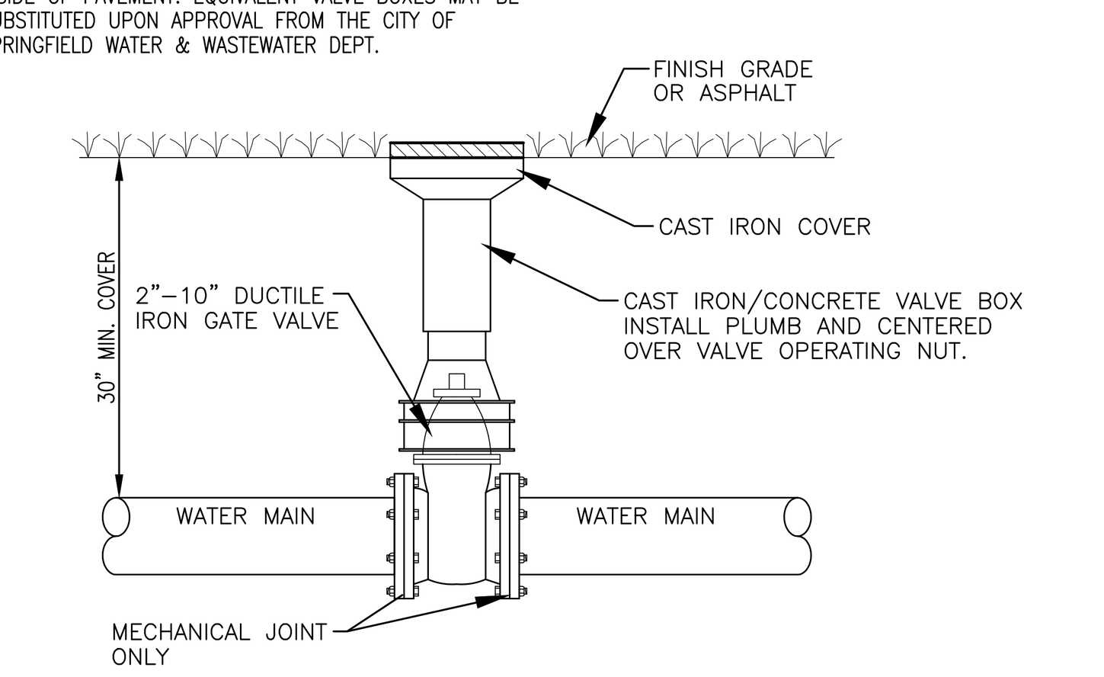
TRENCH WIDTH (X)	
PIPE SIZE	WIDTH–X
4" Thru 12"	30"
14" Thru 18"	36"
20" Thru 24"	42"
26" Thru 36"	54"

TYPICAL BEDDING & BACKFILL IN ROADWAY
NOT TO SCALE

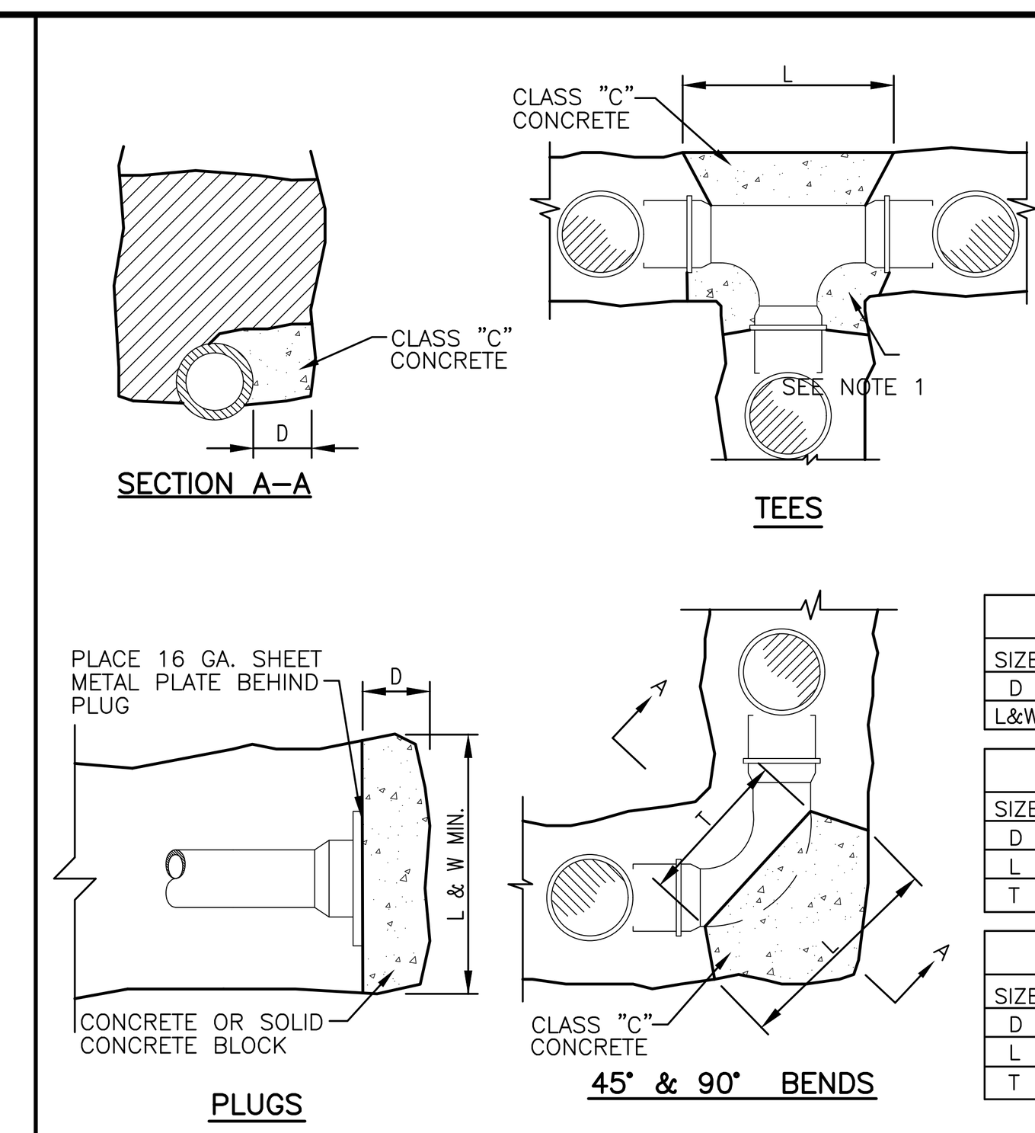


TYPICAL UTILITY CROSSING
NOT TO SCALE

NOTE:
JBS NO. 8004 VALVE BOXES SHALL BE USED OUTSIDE OF PAVEMENT AND JBS 8006 VALVE BOXES SHALL BE USED INSIDE OF PAVEMENT. EQUIVALENT VALVE BOXES MAY BE SUBSTITUTED UPON APPROVAL FROM THE CITY OF SPRINGFIELD WATER & WASTEWATER DEPT.



TYPICAL GATE VALVE DETAIL
NOT TO SCALE



NOTE 1:
Restrained Joints Required; Concrete Thrust Blocks May Be Used In Addition To Restrained Joints, Per 3.3.1 And 3.3.2.

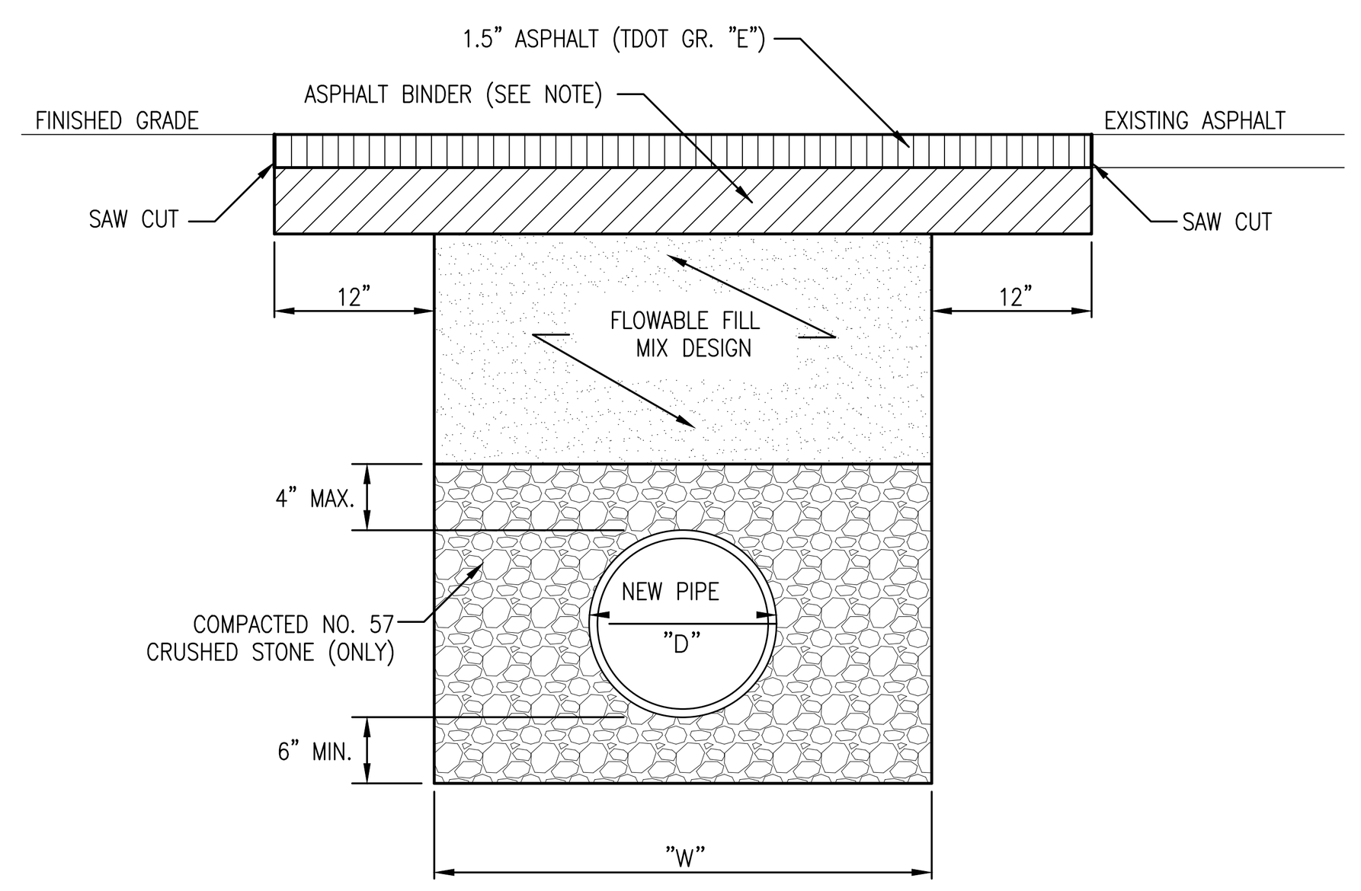
NOTE 2:
Felt Paper Or Plastic Sheet Shall Be Installed Around Tee Before Kicker Is Poured To Protect Hardware.

PLUGS & TEES							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	6"	6"	6"	6"
L&W	14"	16"	18"	20"	22"	24"	24"

(45°) EIGHTH BENDS							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	6"	6"	6"	6"
L	12"	14"	16"	18"	20"	22"	24"
T	10"	12"	14"	16"	16"	18"	18"

(90°) QUARTER BENDS							
SIZE	2"	3"	4"	6"	8"	10"	12"
D	6"	6"	6"	8"	10"	12"	12"
L	15"	18"	21"	24"	27"	30"	34"
T	10"	12"	14"	16"	18"	20"	22"

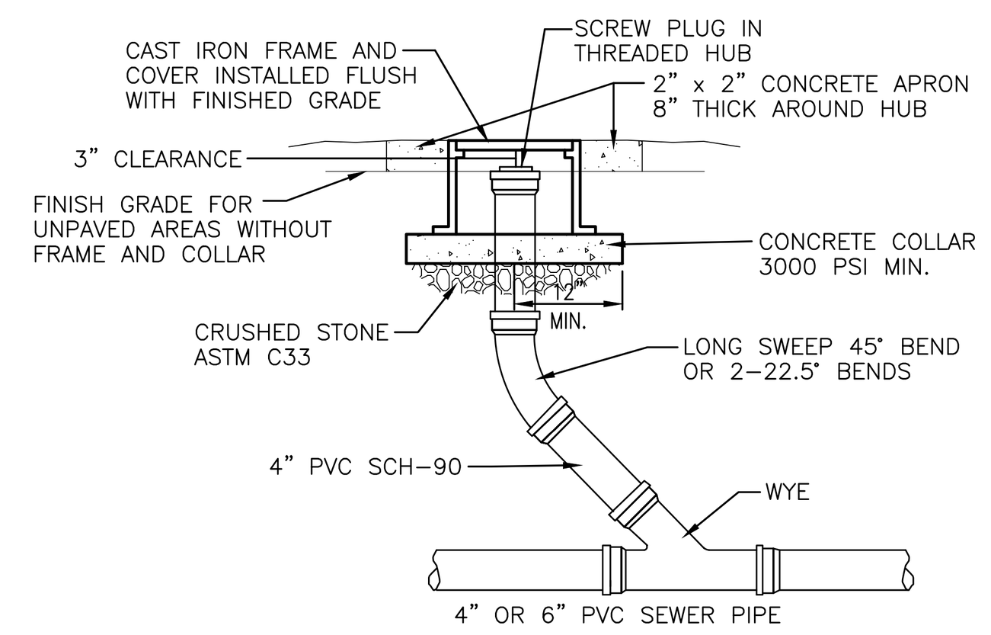
CONCRETE THRUST BLOCK DETAIL
NOT TO SCALE



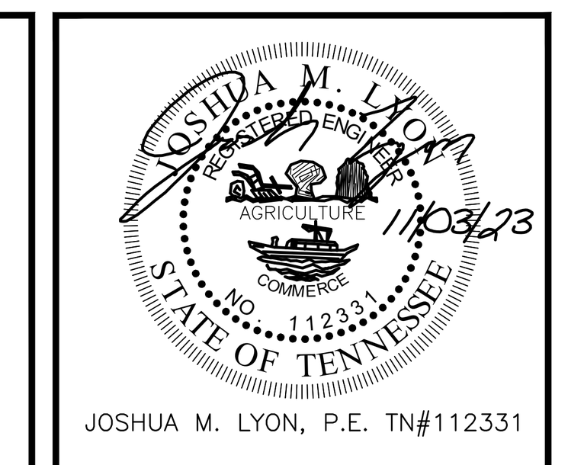
ASPHALT PAVEMENT REPAIR NOTES:

- UTILITY ASPHALT PAVEMENT REPAIR: (UTILITY STREET CUTS) INCLUDES THE EXCAVATION AND REMOVAL OF A MINIMUM 6 INCHES OF CRUSHED LIMESTONE BASE, COMPACTING REMAINING BASE PATCHING WITH THE FOLLOWING: 2 LIFTS OF 4.5" EACH HOT MIX ASPHALT BINDER (COMPACTED) SPRAY TACK MATERIAL ON ASPHALT "BM" AND BRUSH SIDES OF EXISTING ASPHALT PAVEMENT WITH TACK BEFORE APPLYING FINAL LAYER, OF 1.5" HOT MIX ASPHALT, GR "E" MIX COMPACTED.
- CLOSURE OF ANY STREET DURING NIGHTTIME HOURS SHALL BE PROHIBITED DURING ALL CONSTRUCTION PHASES.
- TRENCH PLATES ARE REQUIRED AND NEED TO BE MAINTAINED
- SAW CUT MUST BE CLEANLY SAWED, EDGES STRAIGHT AND COMPLETED BEFORE FINAL LATER OF ASPHALT
- SPRAY TACK MATERIALS ON ASPHALT "BM" AND BRUSH SIDES OF EXISTING ASPHALT PAVEMENT WITH TACK BEFORE APPLYING FINAL LAYER OF "E" MIX (COMPACT)

PAVEMENT REPAIR IN ROADWAY
NOT TO SCALE



CLEAN OUT DETAIL
NOT TO SCALE



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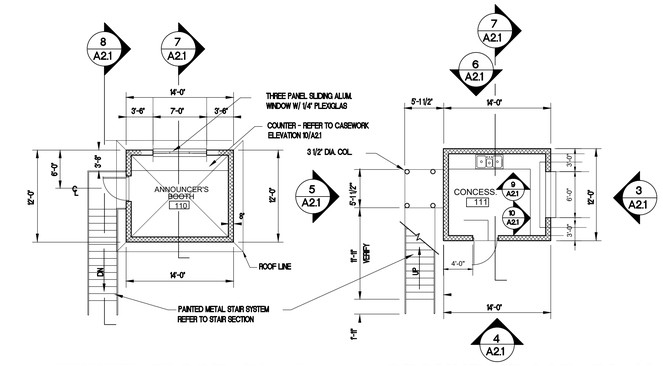
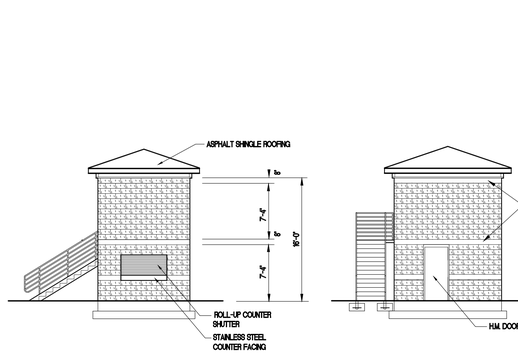


1 UPPER FLOOR PLAN

1/8" = 1'-0"

2 GROUND FLOOR PLAN

1/8" = 1'-0"

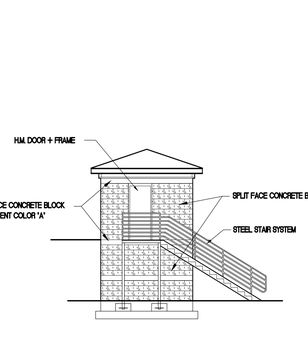


3 ELEVATION

1/8" = 1'-0"

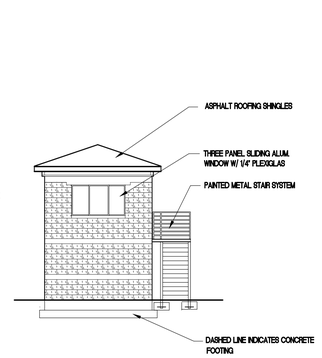
4 ELEVATION

1/8" = 1'-0"



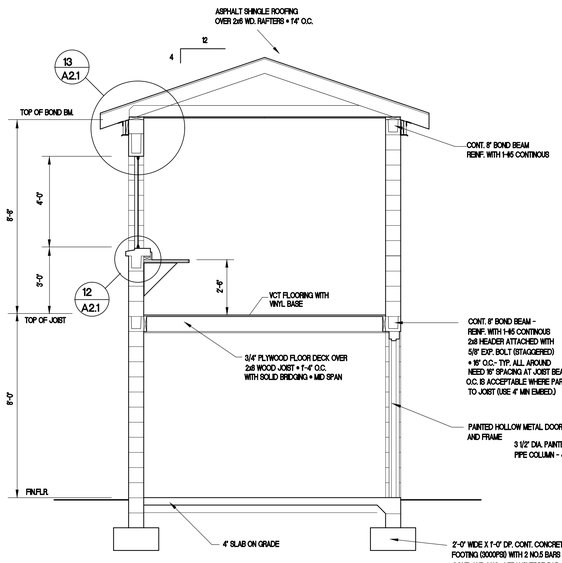
5 ELEVATION

1/8" = 1'-0"



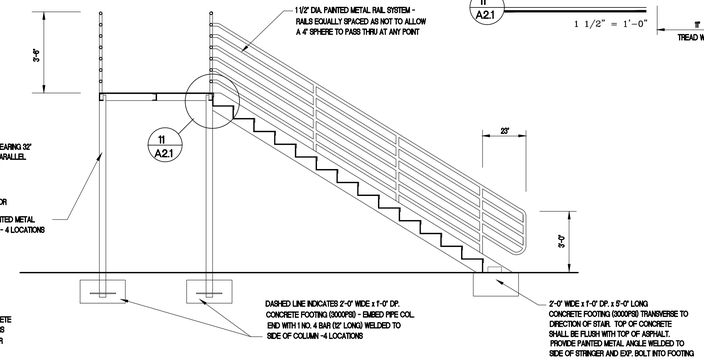
6 ELEVATION

1/8" = 1'-0"



7 BUILDING SECTION

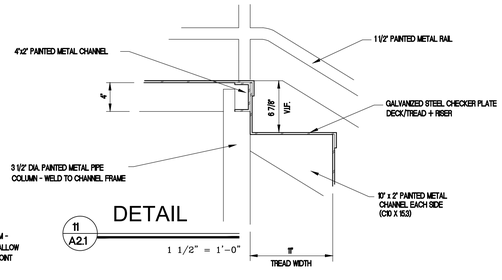
3/8" = 1'-0"



8 SECTION THRU STAIR

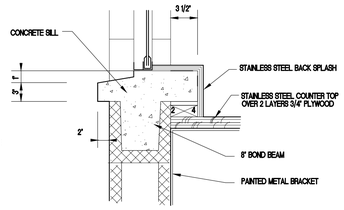
NOTE: CLEAR INSIDE WIDTH OF STAIR SYSTEM SHALL BE NOT LESS THAN 44"

3/8" = 1'-0"



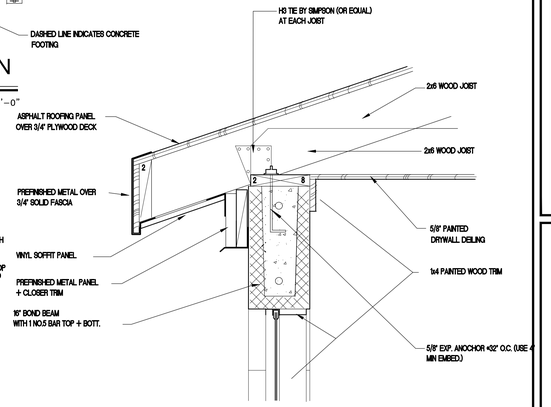
11 DETAIL

1 1/2" = 1'-0"



12 DETAIL

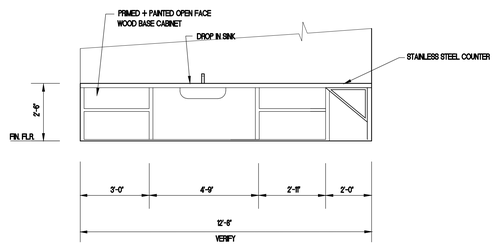
1 1/2" = 1'-0"



13 DETAIL

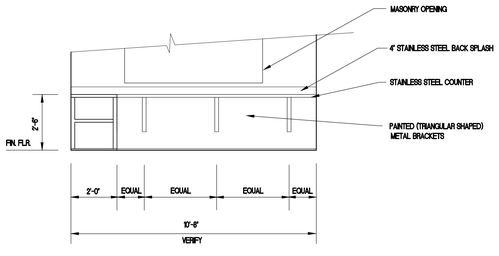
1 1/2" = 1'-0"

REINF. BLOCK MASONRY W/ #5 VERTICALS @ 32" O.C.
PROVIDE JOINT REINFORCEMENT @ 8" O.C.
USE JB28 HANGARS BY SIMPSON (OR EQUAL) AT FLOOR JOISTS
GROUT FILL BLOCK AT REBAR ONLY, GROUT CONFORM W/ ASTM C476
WOOD IN CONTACT W/ MASONRY SHALL BE PRESSURE TREATED



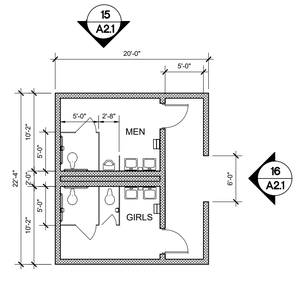
9 CASEWORK ELEVATION

3/8" = 1'-0"



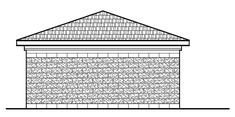
10 CASEWORK ELEVATION

3/8" = 1'-0"



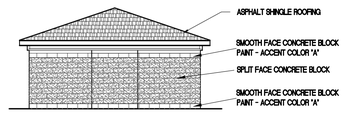
14 FLOOR PLAN

1/8" = 1'-0"



15 EXTERIOR ELEV.

1/8" = 1'-0"



16 EXTERIOR ELEV.

1/8" = 1'-0"

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COOPERTOWN BASEBALL FIELD

Project No.	1450
Issue Date	11-03-23
Drawn By	MSD
Revision Date	
Revision Date	
Revision Date	

A2.1 SHEET NO.

AFF	ABOVE FINISHED FLOOR
CFM	CUBIC FEET PER MINUTE
DN	DOWN
EA	EXHAUST AIR
EAD	EXHAUST AIR DUCT
EAG	EXHAUST AIR GRILLE
EAT	ENTERING AIR TEMP
EF-1	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
HPG	HIGH PRESSURE GAS PIPING (2 PSIG)
IN. WG	INCHES WATER GAUGE
L	LOUVER
LAT	LEAVING AIR TEMP
LPG	LOW PRESSURE GAS PIPING (0.5 PSIG)
MCA	MINIMUM CURRENT AMPS
MFR	MANUFACTURER
MOCP	MAXIMUM OVER-CURRENT PROTECTION
MS	MINI-SPLIT
MSHP	MINI-SPLIT HEAT PUMP
OAD	OUTSIDE AIR DUCT
OSA	OUTSIDE AIR
PLBG	PLUMBING
RA	RETURN AIR
RAD	RETURN AIR DUCT
RAG	RETURN AIR GRILLE
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SAG	SUPPLY AIR GRILLE
SP	STATIC PRESSURE
TAD	TRANSFER AIR DUCT
TAG	TRANSFER AIR GRILLE
TSTAT	THERMOSTAT
TYP	TYPICAL
UH	UNIT HEATER
8ø	ROUND DUCTWORK
10x6	RECTANGULAR DUCT (WIDTHxDEPTH)

1 ABBREVIATIONS - MECHANICAL
NOT TO SCALE

T	THERMOSTAT
	TURNING VANES
	SUPPLY DUCT IN SECTION
	RETURN DUCT IN SECTION
	EXHAUST DUCT IN SECTION
	SUPPLY DIFFUSER
A 500	DIFFUSER CFM AND TYPE
	RETURN/EXHAUST AIR DEVICE
	AIRFLOW DIRECTION

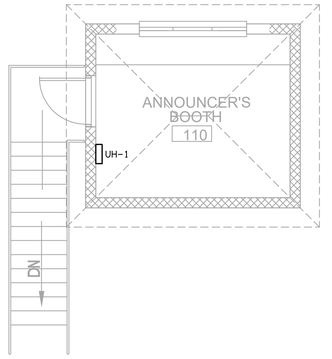
2 SYMBOLS - MECHANICAL
NOT TO SCALE

1. REFER TO 2018 INTERNATIONAL BUILDING CODE, ASCE 7. ASHRAE, SMACNA REQUIREMENTS.
2. BUILDING SHALL BE SEISMICALLY PROTECTED FOR SEISMIC DESIGN CATEGORY LISTED IN ARCHITECTURAL OR STRUCTURAL DRAWINGS.
3. SEISMIC RESTRAINTS SHALL NOT BE REQUIRED FOR THE FOLLOWING INSTALLATIONS:
   - 3.1. PIPING IN MECHANICAL ROOMS (EXCEPT GAS PIPING) LESS THAN 1-1/4 INCH INSIDE DIAMETER
   - 3.2. ALL OTHER PIPING (EXCEPT GAS PIPING, SPRINKLER) LESS THAN 2-1/2 INCH INSIDE DIAMETER.
   - 3.3. ALL RECTANGULAR DUCTS LESS THAN 6 SQ. FT. IN CROSS-SECTIONAL AREA.
   - 3.4. ALL ROUND DUCTS LESS THAN 28 INCHES IN DIAMETER.
   - 3.5. ALL PIPING SUSPENDED BY INDIVIDUAL HANGERS 12 INCHES OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
   - 3.6. ALL DUCTS SUSPENDED BY HANGERS 12 INCHES OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE BOTTOM OF THE SUPPORT FOR THE HANGER.
4. WHERE REQUIRED, GAS PIPING SHALL BE SEISMICALLY BRACED TRANSVERSELY AT EVERY 20 FEET AND LONGITUDINAL AT EVERY 40 FEET.
5. WHERE REQUIRED, DUCTS SHALL BE SEISMICALLY BRACED TRANSVERSELY AT EVERY 30 FEET AND LONGITUDINAL AT EVERY 60 FEET.
6. WHERE REQUIRED, HVAC PIPING SHALL BE SEISMICALLY BRACED TRANSVERSELY AT EVERY 40 FEET AND LONGITUDINAL AT EVERY 80 FEET.

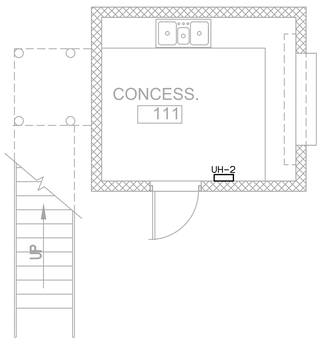
3 SEISMIC NOTES - MECHANICAL
NOT TO SCALE

1. FURNISH AND INSTALL ALL NECESSARY LABOR AND MATERIALS FOR A COMPLETE SYSTEM. ANY APPLIANCES OR MATERIALS OBVIOUSLY A PART OF THE SYSTEM AND NECESSARY FOR ITS PROPER OPERATION, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL.
2. WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
3. ATTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES.
4. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT NECESSARILY SHOW FITTING AND DETAIL. INSTALL DUCTS, EQUIPMENT, PIPING, ETC., IN A NEAT WORKMANLIKE MANNER, AND IN ACCORDANCE WITH GOOD PRACTICE FOR A COMPLETE WORKABLE INSTALLATION. AVOID CONFLICT WITH OTHER WORK; MAKE ADEQUATE PROVISIONS FOR PREVENTING NOISE AND VIBRATION. ARRANGE EQUIPMENT INTO THE AVAILABLE SPACE IN A MANNER TO MAKE ALL WORKING PARTS ACCESSIBLE FOR MAINTENANCE AND SERVICE.
5. MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AGAINST DEFECTS FOR ONE YEAR.
6. PROTECT ALL MATERIALS AND EQUIPMENT FROM DAMAGE.
7. CONSTRUCT AIR DUCTS IN ACCORDANCE WITH SMACNA DUCT MANUALS LATEST EDITION.
8. HVAC WORK INDICATED DIAGRAMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS.
9. ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
10. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH STATE CODES, MANUFACTURER'S APPROVED PUBLISHED LITERATURE, AND AUTHORITIES HAVING JURISDICTION. A COPY OF THE MFR'S INSTALLATION INSTRUCTIONS SHALL BE KEPT ON THE JOB SITE AT ALL TIMES.
11. INSTALLATION OF ALL EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT.
12. COORDINATE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE ORDERING.
13. FLEXIBLE DUCT RUNOUTS TO CEILING DIFFUSERS SHALL BE INSTALLED FREE OF KINKS AND SAGS. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 3'-0".
14. COMPLETION AND TESTS SHALL INCLUDE CLEANING AND LUBRICATION OF ALL EQUIPMENT. AND ADJUSTMENTS FOR PROPER OPERATION. ADJUST DAMPERS, REGISTERS AND DIFFUSERS FOR PROPER AIR DISTRIBUTION. CHECK SYSTEM UNDER ACTUAL OPERATING CONDITIONS AND MAKE ADJUSTMENTS FOR A UNIFORM TEMPERATURE THROUGH THE CONDITIONED SPACE.
15. LOCATIONS SHOWN FOR EQUIPMENT ARE APPROXIMATE LOCATIONS. CONTRACTOR SHALL COORDINATE WITH THE FIELD CONDITIONS FOR THE EXACT LOCATION AND MODIFY DUCTS/PIPES ACCORDINGLY.
16. CONTRACTOR SHALL FIELD VERIFY AVAILABLE SPACE FOR DUCTWORK BEFORE FABRICATING. CONTRACTOR SHALL MODIFY DUCTWORK TO FIT AVAILABLE FIELD CONDITIONS.
17. SIZE REFRIGERANT PIPING PER MANUFACTURERS RECOMMENDATIONS FOR ACTUAL LINE LENGTHS AND VERTICAL LIFT REQUIRED.
18. ALL EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE SEALED WATERPROOF.
19. PROVIDE FIRESTOP WHERE PIPES, CONDUITS, BUS DUCTS, WIRES, DUCTS, AND SIMILAR BUILDING SERVICE EQUIPMENT PENETRATING RATED FLOORS AND WALLS.
20. ALL CEILING EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
21. ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
22. PROVIDE VOLUME DAMPERS AT EACH BRANCH TAKEOFF AND IN SUCH OTHER LOCATIONS WHERE REQUIRED TO PROPERLY BALANCE THE SYSTEM.
23. PROVIDE INSTRUMENT TEST HOLES WITH CAPS IN AIR DISTRIBUTION SYSTEMS WHEREVER VOLUME DAMPER ARE SHOWN.
24. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATIONS SHALL BE PROVIDED BY HVAC CONTRACTOR.
25. ALL TRANSFER DUCT SHALL BE INTERNALLY LINED.
26. ALL THE MITERED ELBOWS SHALL BE PROVIDED WITH TURNING VANES. ALL THE ROUND ELBOWS SHALL A CENTER TO FACE OF 1.5 X THE DUCT WIDTH.
27. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR SUSPENDED CEILINGS UNLESS OTHERWISE NOTED.
28. ACCESS PANELS IN SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, DAMPERS, CONTROLS, ETC., AND SHALL BE FURNISHED UNDER ARCHITECTURAL SPECIFICATIONS.
29. PROVIDE ONE 12"x12" TAD FOR EVERY 400 CFM AS REQUIRED FOR RA PATH BACK TO UNIT IN ROOMS WHERE WALLS GO TO DECK.
30. ALL MATERIAL INSTALLED IN RETURN AIR PLENUM SHALL HAVE FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50. INSTALL PLENUM RATED ELECTRICAL AND LOW VOLTAGE CABLE IN RETURN AIR PLENUM.
31. ALL MOTORIZED DAMPERS SHALL BE LOW VOLTAGE AND POWERED BY THE ASSOCIATED EQUIPMENT.

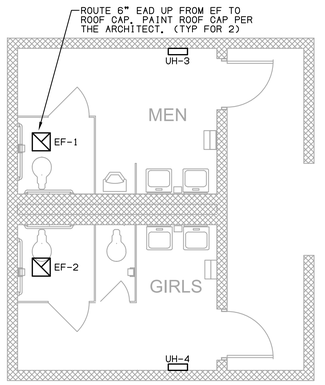
4 GENERAL NOTES - MECHANICAL
NOT TO SCALE



5 GROUND FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



6 UPPER FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



7 FLOOR PLAN - MECHANICAL
1/4" = 1'-0"

ELECTRIC UNIT HEATER SCHEDULE

GENERAL DATA		ELECTRICAL DATA		
MARK	MOUNTING HEIGHT AFF	KW	VOLTS/ PHASE	COMMENTS
UH-1	12"	2	208/1	1
UH-2	12"	2	208/1	1
UH-3	12"	2	208/1	1
UH-4	12"	2	208/1	1

1. UH TO BE EQUAL TO MARKEL 3450. UH TO BE HEAVY DUTY WITH TAMPER PROOF STEEL GRILLE, TAMPER PROOF THERMOSTAT, AND INTEGRAL DISCONNECT.

EXHAUST FAN SCHEDULE

GENERAL DATA						ELECTRICAL DATA		FAN WHEEL			
MARK	CFM	EXT SP IN. WG	MAX SONE RATING	DISCHARGE	TYPE	MOTOR HP/ WATTS	VOLTS/PHASE	DRIVE	FAN SPEED RPM	INTERLOCK	COMMENTS
EF-1	75	0.3	0.6	ROOF	CEILING	80 WATTS	120/1	DIRECT	755	LIGHTS	1
EF-2	75	0.3	0.6	ROOF	CEILING	80 WATTS	120/1	DIRECT	755	LIGHTS	1

1. FAN TO BE EQUAL TO GREENHECK MODEL SP-B110 WITH GRILLE KIT, INTEGRAL DISCONNECT, BACKDRAFT DAMPER, SPEED CONTROLLER, HANGING VIBRATION ISOLATION KIT, ROOF CAP, AND ALL ACCESSORIES AS REQUIRED FOR INTERLOCKING.

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COOPERTOWN BASEBALL FIELD

Legends, Notes, Schedules, Floor Plans - Mechanical

Project No.	1450
Issue Date	11-03-23
Drawn By	
Revision Date	
Revision Date	
Revision Date	

HNA ENGINEERING

M1.1
SHEET NO.

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE TYPE	FLUSH / FAUCET / SHOWER HEAD	TRIM AND REMARKS	TRAP SIZE	MIN. SIZE CONN. SW	SV	CW	HW
WC-1	WATER CLOSET, REGULAR, WHITE VITREOUS CHINA, ELONGATED BOWL, FLOOR MOUNTED, 1-1/2" TOP SPUD, SIPHON JET ACTION, AMERICAN STANDARD 2234.001 OR EQUAL.	1.28 GPF, INTEGRAL VACUUM BREAKER, SENSOR OPERATED BATTERY POWERED, ZURN ZER6000PL-W2-HET OR EQUAL. PROVIDE TRAP PRIMER OPTION WHERE REQUIRED.	SEAT TO BE ELONGATED, OPEN FRONT, SOLID PLASTIC WITH SELF SUSTAINING CHECK HINGES, COLOR WHITE, BEMIS 1955SSC.	INT.	4"	2"	1"	---
WC-2	WATER CLOSET, ADA, WHITE VITREOUS CHINA, ELONGATED BOWL, FLOOR MOUNTED, 1-1/2" TOP SPUD, SIPHON JET ACTION, AMERICAN STANDARD 3043.001 OR EQUAL.	1.28 GPF, INTEGRAL VACUUM BREAKER, SENSOR OPERATED BATTERY POWERED, ZURN ZER6000PL-W2-HET OR EQUAL. PROVIDE TRAP PRIMER OPTION WHERE REQUIRED.	SEAT TO BE ELONGATED, OPEN FRONT, SOLID PLASTIC WITH SELF SUSTAINING CHECK HINGES, COLOR WHITE, BEMIS 1955SSC.	INT.	4"	2"	1"	---
U-1	URINAL, REGULAR AND DISABLED, WHITE VITREOUS CHINA, WALL HUNG, SIPHON JET ACTION, 3/4" TOP SPUD, 1.0 GPF, AMERICAN STANDARD 6550.001 OR EQUAL.	1.0 GPF, INTEGRAL VACUUM BREAKER, SENSOR OPERATED BATTERY POWERED, ZURN ZER6003AV-CPM-WS1 OR EQUAL.	PROVIDE APPROPRIATE FLOOR MOUNTED CARRIER. REFER TO ARCHITECTURAL SERIES FOR MOUNTING HEIGHTS.	INT.	3"	2"	1"	---
L-1	WHITE VITREOUS CHINA, WALL HUNG LAVATORY WITH 1 FAUCET HOLE EQUAL TO AMERICAN STANDARD "LUCERNE" 0355.012.	CHROME PLATED, DECK MOUNTED, 0.5GPM, ZURN Z7440-XL-FC. PROVIDE ASSE 1070 COMPLIANT MIXING VALVE EQUAL TO ZURN ZW3870XLT.	1-1/4" GRID WITH TAILPIECE, ZURN Z8743-PC. P-TRAP TO BE 1-1/2" BRASS (17 GA, MIN), ZURN Z8700-PC SERIES. PROVIDE SUPPLIES AND STOPS, ZURN Z8800 SERIES. INSTALL CONCEALED FLOOR MOUNTED ARM CARRIER. PROVIDE DEARBORN SAFETY SERIES INSLUATION ON ALL EXPOSED TRIM.	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"
S-1	SINK, 3-COMP, STAINLESS STEEL (TYPE 304, 18 GA.), 43"x22", 7-7/8" DEPTH, TOP MOUNT, 1 HOLE DRILLED, ELKAY "LUSTERTONE" LCR4322.	POLISHED CHROME, ADA COMPLIANT SINGLE LEVER HANDLE, GOOSENECK SPOUT WITH PULL DOWN SPRAY, 1.5 GPM, CHICAGO 434-ABCP.	BASKET STRAINER WITH TAILPIECE, LK99. P-TRAP TO BE 1-1/2" BRASS (17 GA, MIN), ZURN Z8700. PROVIDE APPLICABLE WHEEL HANDLE STOPS AND SUPPLIES. ZURN Z8800 SERIES.	2"	2"	2"	1/2"	1/2"
FD-1	FLOOR DRAIN: CAST IRON FLOOR DRAIN WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP, ADJUSTABLE COLLAR, SEEPAGE OPENINGS, POLISHED NICKEL BRONZE LIGHT DUTY LEVELING STRAINER WITH VANDAL PROOF SCREW - ZURN Z415BZ.		SET TOP OF DRAINS FLUSH WITH FINISHED FLOOR. PROVIDE AND INSTALL TRAP GUARD INSERTS ON ALL FLOOR DRAINS NOT SERVED BY TRAP PRIMER.	DWG	DWG	2"	---	---
FCO	FLOOR CLEANOUT: CAST IRON CLEANOUT WITH THREADED ADJUSTABLE HOUSING, FLANGED FERRULE WITH TAPERED BRASS PLUG, ROUND, SECURED, SCORIATED NICKEL BRONZE TOP - ZURN Z1400.		SET TOP OF CLEANOUT COVER FLUSH WITH FINISHED FLOOR.	DWG	DWG	---	---	---
WCO	WALL CLEANOUT: CAST IRON CLEANOUT WITH TAPERED BRASS PLUG, ROUND STAINLESS STEEL COVER PLATE WITH SCREW - ZURN Z1441.			DWG	DWG	---	---	---
GCO	GRADE CLEANOUT: HEAVY DUTY CAST IRON CLEANOUT WITH THREADED ADJUSTABLE HOUSING, FLANGED FERRULE WITH TAPERED BRASS PLUG, HEAVY DUTY, SECURED, SCORIATED CAST IRON TOP - ZURN Z1400.		IF CLEANOUT IS NOT LOCATED IN CONCRETE POUR CONCRETE PAD AROUND CLEANOUT COVER MINIMUM OF 12"X12"X4"	DWG	DWG	---	---	---

LEGEND

LINE TYPE	DESCRIPTION
———	SANITARY WASTE
———SV———	SANITARY VENT
———CO———	CONDENSATE
———IV———	INDIRECT VENT
———GW———	GREASE WASTE
———GV———	GREASE VENT
———	COLD WATER
———	HOT WATER
———	HOT WATER RETURN

WATER HEATER SCHEDULE

DESIGNATION:	WH-1
SERVICE:	DOMESTIC HOT WATER
TOTAL NUMBER:	1
MANUFACTURER:	EMMAX
MODEL NO:	SPEX8208T
SET WATER TEMP:	120°F
TYPE:	INSTANTANEOUS WATER HEATER
ELEC CONNECTION:	8.3KW/208V/1ϕ

WATER HEATER NOTES:
- PROVIDE JUNCTION BOX AND DISCONNECT.

WATER HEATER SCHEDULE

DESIGNATION:	WH-2	
SERVICE:	DOMESTIC HOT WATER	
TOTAL NUMBER:	1	
MANUFACTURER:	STATE	AO SMITH
MODEL NO:	PCE 20 20MSA	DEL-20
SET WATER TEMP:	120°F	120°F
GALLON STORAGE:	20	20
RECOVERY:	15 GPH @ 80° RISE	15 GPH @ 80° RISE
ELEC CONNECTION:	3KW/208V/1ϕ	3KW/208V/1ϕ

WATER HEATER NOTES:
- PROVIDE JUNCTION BOX AND DISCONNECT.
- PROVIDE AND INSTALL SEISMIC RESTRAINT ON WATER HEATER.

BACKFLOW PREVENTER SCHEDULE

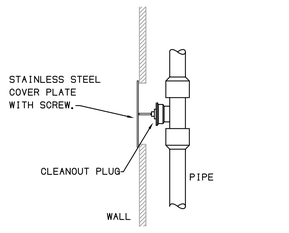
DESIGNATION:	BFP-1	
SERVICE:	DOMESTIC WATER	
TOTAL NUMBER:	1	
MANUFACTURER:	WATTS	ZURN
MODEL NO:	LF-919-QTS	975XL2
FLOW RATE (GPM):	DWG	DWG
SIZE:	3/4"	3/4"
PSI LOSS:	9	9

BACKFLOW NOTES:
- PROVIDE WITH AIR GAP FITTING AND STRAINER.
- TERMINATE OVER MOP BASIN WITH AIR GAP.
- SIZE DRAIN PER MANUFACTURER'S RECOMMENDATIONS.

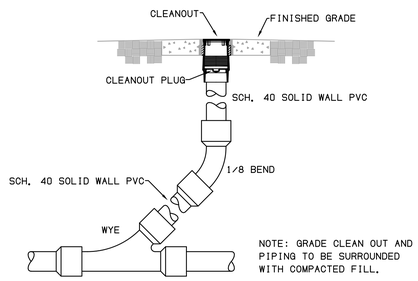
BACKFLOW PREVENTER SCHEDULE

DESIGNATION:	BFP-2	
SERVICE:	DOMESTIC WATER	
TOTAL NUMBER:	1	
MANUFACTURER:	WATTS	ZURN
MODEL NO:	LF-919-QTS	975XL2
FLOW RATE (GPM):	DWG	DWG
SIZE:	2"	2"
PSI LOSS:	9	9

BACKFLOW NOTES:
- PROVIDE WITH AIR GAP FITTING AND STRAINER.
- TERMINATE OVER MOP BASIN WITH AIR GAP.
- SIZE DRAIN PER MANUFACTURER'S RECOMMENDATIONS.



WCO CLEANOUT DETAIL
NO SCALE



NOTE: GRADE CLEAN OUT AND PIPING TO BE SURROUNDED WITH COMPACTED FILL.

GRADE CLEANOUT DETAIL
NO SCALE

PLUMBING NOTES:

- CONTRACTOR SHALL COORDINATE THE UTILITY SERVICE CONNECTIONS WITH CIVIL PRIOR TO INSTALLATION OF UTILITIES.

-CONTRACTOR SHALL COORDINATE WITH OWNER THE DISRUPTION OF ANY SERVICE A MINIMUM OF 72 HOURS IN ADVANCE.

- CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE PLUMBING SYSTEM AS A WHOLE WITH ALL THE TRADES INVOLVED TO AVOID ROUTING CONFLICTS/PROBLEMS. IF COFLICTS/PROBLEMS ARE FOUND AND CAN NOT BE RESOLVED BY THE INVOLVED TRADES THEN THE ARCHITECT SHALL BE CONSULTED AND THEIR DECISION SHALL GOVERN.

-IF THE VENT PENETRATIONS OF THE ROOF ARE REQUIRED TO BE 3" AND LARGER BY CODE, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED INCREASERS BELOW ROOF DECK AND PENETRATE THE ROOF WITH THE MINIMUM REQUIRED PIPE SIZE.

-CONTRACTOR SHALL PROVIDE AND INSTALL PISTON TYPE WATER HAMMER ARRESTORS ON WATER LINES SERVING FLUSH VALVES AND QUICK CLOSING VALVES. CONTRACTOR SHALL SIZE AND INSTALL WATER HAMMER ARRESTORS WITH THE REQUIREMENTS OF THE PLUMBING AND DRAINAGE INSTITUTE GUIDELINES.

- CONTRACTOR SHALL COORDINATE ALL VENTS AND ROOF PENETRATIONS WITH MECHANICAL EQUIPMENT PRIOR TO INSTALLATION. ALL VENT THROUGH ROOFS SHALL BE ROUTED A MINIMUM OF 15 FEET AWAY FROM FRESH AIR INTAKES FROM MECHANICAL EQUIPMENT.

- FURNISH AND INSTALL DEEP SEAL P-TRAPS & TRAP GUARD INSERTS ON FLOOR DRAINS NOT FED BY AN AUTOMATIC TRAP PRIMER SYSTEM, WHERE REQUIRED BY CODE.

- CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURERS EQUIPMENT CUT SHEETS AND LAYOUT OF ALL EQUIPMENT THAT WILL BE PROVIDED BY OWNER AND GENERAL CONTRACTOR PRIOR TO THE INSTALLATION OF PLUMBING ROUGH-INS. CONTRACTOR SHALL PROVIDE AND INSTALL PLUMBING ROUGH IN FOR ALL EQUIPMENT. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED GAUGES, PRESSURE REDUCING VALVES, WATER HAMMER ARRESTORS, SHUT-OFF VALVES, CHECK VALVES, BACK FLOW PREVENTION DEVICES ETC THAT ARE REQUIRED BY THE MANUFACTURER FOR THEIR EQUIPMENT. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL ALL ITEMS REQUIRED BY LOCAL, STATE AND FEDERAL CODES FOR PLUMBING ROUGH-INS.

- ALL FIXTURES, EQUIPMENT AND PIPING SHOWN ON THESE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE REQUIREMENTS.

- PENETRATIONS THROUGH NEW WALLS AND FLOORS SHALL BE SLEEVED AND/OR PATCHED. REFER TO ARCHITECTURAL SERIES FOR FINISH INFORMATION.

- ALL NEW PIPE PENETRATIONS OF FIRE RATED WALLS, AS SHOWN BY THE LIFE SAFETY PLANS, SHALL HAVE A UL LISTED F RATING EQUAL TO THE WALL FIRE RATING. SEE PLUMBING PLANS FOR UL PENETRATION DETAILS.

- ALL WORK SHOWN IS PART OF BASE BID EXCEPT WHERE OTHERWISE DESIGNATED.

- SEISMICALLY BRACE ALL PIPE AS REQUIRED BY LOCAL CODE REQUIREMENTS.

- PIPING SHALL NOT BE INSTALLED OVER ELECTRICAL EQUIPMENT.

- CAULK AROUND ALL PLUMBING FIXTURES. CAULK COLOR SHALL MATCH PLUMBING FIXTURE COLOR.

- EXACT LOCATIONS OF MECHANICAL EQUIPMENT SHALL BE VERIFIED WITH THE MECHANICAL CONTRACTOR. ALL REQUIRED CONDENSATE PIPING SHALL BE COORDINATED WITH THIS EQUIPMENT.

- SANITARY SEWER PIPING SHALL BE SLOPED AS FOLLOWS: 3" SANITARY WASTE PIPING AND LARGER SHALL BE ROUTED AT 1/8" PER FOOT MINIMUM. 2" SANITARY WASTE PIPING AND SMALLER SHALL BE ROUTED AT 1/4" PER FOOT MINIMUM.

- CONTRACTOR TO PROVIDE PROPERLY SIZED ISOLATION VALVES AT ALL DOMESTIC WATER BRANCH PIPING AND ALL DOMESTIC WATER PIPING SERVING INDIVIDUAL FIXTURES OR RESTROOMS. VALVES TO BE INSTALLED IN AN ACCESSIBLE LOCATION ABOVE TILE CEILING.

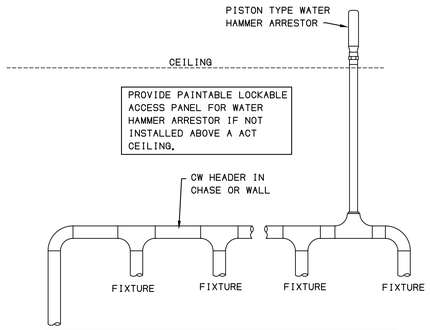
- CONTRACTOR TO PROPERLY BALANCE DOMESTIC HOT WATER AND HOT WATER RETURN SYSTEMS. CONTRACTOR TO PROVIDE CALINBRATED BALANCING VALVES ON HOT WATER RETURN PIPING AS NECESSARY.

- ALL CONDENSATE PIPING ROUTED ABOVE CEILING SHALL HAVE A CLEANOUT AT ALL 90 DEGREE TURNS AND EVERY 50'.

- CONTRACTOR SHALL ESTABLISH A SEQUENCE OF INSTALLATION WITH OTHER TRADES WORKING ON THE PROJECT. CONTRACTOR SHALL THOROUGHLY COORDINATE ALL SYSTEMS WITH OTHER TRADES.

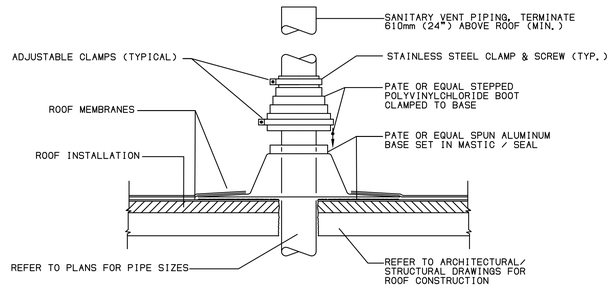
- CATHODIC PROTECTION, IF REQUIRED, IS THE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL PROTECT ALL UNDERGROUND METALLIC PIPING FROM CORROSION. REFER TO SOILS REPORT. UNDERGROUND PIPING MAY ALSO BE PROTECTED WITH POLYETHYLENE ENCASEMENT CONFORMING TO ANSI/AWWA REQUIREMENTS. ALL PIPING SHALL BE WRAPPED COMPLETELY WITH ENCASEMENT TO A POINT AT LEAST 12 A.F.G OR FIN. FLOOR. ENCASEMENT SHALL BE FREE OF TEARS WITH ALL JOINTS COMPLETELY SEALED. NO PORTION OF THE PIPE SHALL BE LEFT EXPOSED TO CORROSIVE SOIL.

- PLASTIC PIPING IS NOT ALLOWED IN PLENUM SPACES.



WATER HAMMER ARRESTOR SHALL BE INSTALLED AT ALL LOCATIONS WHERE WATER HAMMER CONDITIONS COULD POTENTIALLY EXIST, IE: FLUSH VALVES (MULTIPLE OR SINGLE FIXTURE RESTROOMS), QUICK CLOSING VALVES, SOLENOID VALVES, WASHING MACHINES, ETC. REFER TO MANUFACTURERS CUT SHEETS FOR SIZING AND PLACEMENT OF WATER HAMMER ARRESTORS PRIOR TO ORDERING. IF INSTRUCTIONS ARE NOT SUPPLIED REFER TO PDI GUIDELINES.

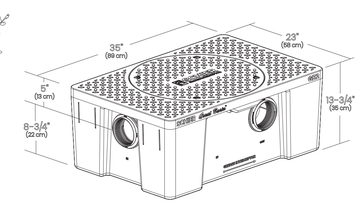
WATER HAMMER ARRESTOR
NO SCALE



VENT THROUGH ROOF DETAIL
NO SCALE

SPECIFICATION AND SUBMITTAL

GB2 35/50 GPM Grease Interceptor for Indoor Use



This unit is certified to ASME A112.14.3 (Type C) and CSA B481 at two different flow rates and includes the internal flow controls for both. External flow control with vent not required.

Satisfies Mixed Metal 95% efficiency requirements when at least 2 units are installed in series

SUBMITTAL

Standard

Location: Indoor
Installation: above/below grade
Flow Rates / Grease Capacities:
35 GPM (2.2 L/s) / 130.5 lbs. (59.2 kg)
50 GPM (3.2 L/s) / 127.6 lbs. (57.9 kg)
Solids Capacity: 1.8 gal. (6.8 L)
Liquid Capacity: 20 gal. (75.7 L)
Weight: 49 lbs. (22.2 kg)
Connections: 3" (75 mm) and 4" (100 mm) plain end
Cover: bolted gas/water tight polypropylene with 1,000 lb. load rating when unit is buried with FCR1 riser

Options

- -FD: fixed outlet diffuser
- FCR1 (x1): > 2-1/16" - 12" field cut riser
- FCR2 (x2): > 12" - 24" field cut risers
- CCR: membrane clamping collar kit (requires FCR1 riser)
- PPK: pumpout port kit
- BRKT: support gusset kit
- PLAIN-SA-04: 2" (50 mm) plain end fitting
- FPT-SA-04: 4" x 3" (100 mm x 75 mm) FPT fitting
- FPT-SA-03: 3" x 2" (75 mm x 50 mm) FPT fitting

Approval

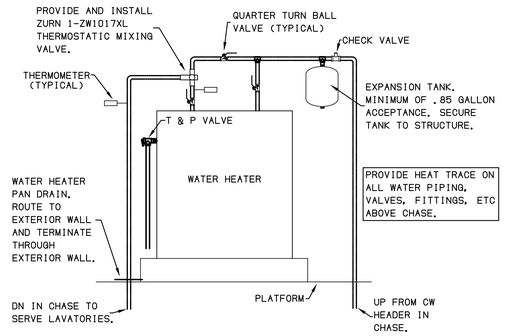
Signature:	Date:	Company:
Specifying Engineer:		Engineering Firm:

SCHIER LIFETIME GUARANTEED GREASE INTERCEPTORS | MODEL NUMBER: GB2 | DESCRIPTION: 35/50 GPM Polyethylene Grease Interceptor | PART #: 4065-001-05 | DWG BY: B. Kamer | DATE: 4/10/2019 | REV: | ECO:

8900 Woodland Road | Edwardsville, KS 66111 | Tel: 913-981-3300 | www.schierproducts.com

Page 1 of 4

GREASE TRAP DETAIL
NO SCALE



WH-2 DETAIL
NO SCALE

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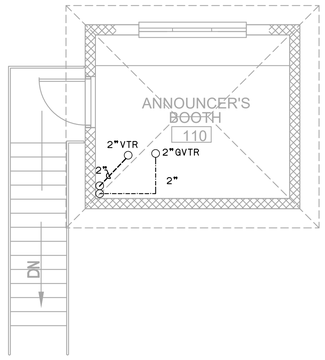
COOPERTOWN BASEBALL FIELD

Schedules, Legends and Notes - Plumbing

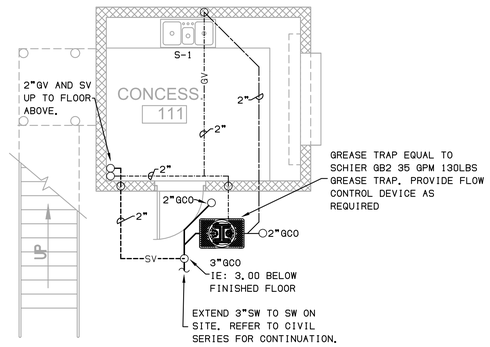
Project No.	1450
Issue Date	11-03-23
Drawn By	
Revision Date	
Revision Date	
Revision Date	

P0.1 SHEET NO.

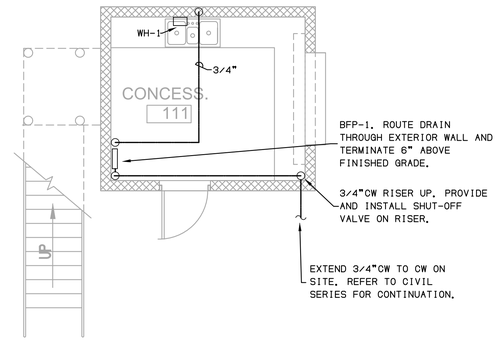
HNA ENGINEERING



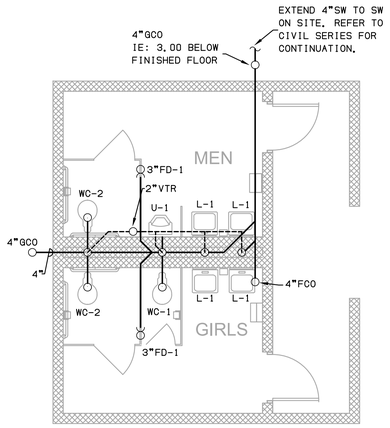
③ UPPER FLOOR PLAN - DWV - PLUMBING
1/4" = 1'-0"



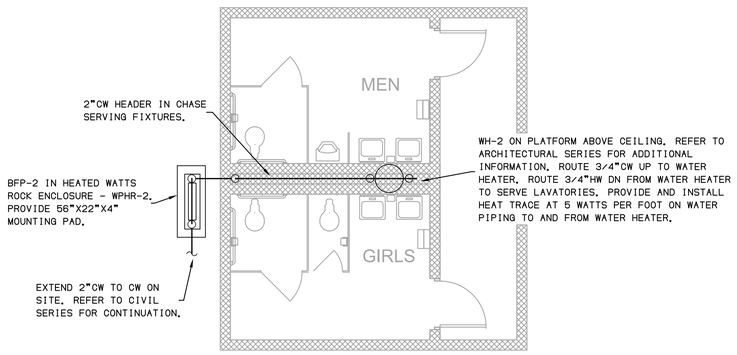
② GROUND FLOOR PLAN - DWV - PLUMBING
1/4" = 1'-0"



⑤ GROUND FLOOR PLAN - WATER - PLUMBING
1/4" = 1'-0"



① FLOOR PLAN - DWV - PLUMBING
1/4" = 1'-0"



④ FLOOR PLAN - DWV - PLUMBING
1/4" = 1'-0"

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COOPERTOWN BASEBALL FIELD

Floor Plans - Plumbing

Project No.	1450
Issue Date	11-03-23
Drawn By	
Revision Date	
Revision Date	
Revision Date	

HNA ENGINEERING

P1.1
SHEET NO.

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	MOUNTING	MODEL	INPUT WATTS	VOLTS	NOTE 1	NOTE 2	NOTE 3
C2		95W LED	8' STRIPLIGHT, LENSED	SURFACE/WALL	HE WILLIAMS #96-8-LL30/840-DFR-OCCWS-HB350W-L3W-DIM-UNV	95	120V 1P 2W	INTEGRATED SENSOR	SUITABLE FOR WET LOCATIONS	4000K
EM		3W LED	(2)-HEAD EMERGENCY EGRESS FIXTURE	WALL, @ 7' AFF	BEGHELLI #BBX-SE-HO-WHT-AT	3	120V 1P 2W	INTEGRAL BATTERY PACK TO BE CONNECTED TO UNSWITCHED "SENSING" CIRCUIT.	PROVIDE LIGHTING MANUFACTURER RECOMMENDED EMERGENCY BATTERY BACKUP CAPABLE OF 90 MINUTE RUNTIME.	
P		39W LED	ARCHITECTURAL WALLPACK, TYPE 3 DISTRIBUTION	WALL, MTD PER ARCHITECT ELEVATIONS	GARDCO #GWM-A09-840-T3M-UNV-PCB-BZ	39	120V 1P 2W	COORDINATE FINISH WITH ARCHITECT	4000K	

FIXTURE SCHEDULE NOTES

1. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY AND ALL FIXTURES NOT PRE-APPROVED BY ARCHITECT/ENGINEER 10 DAYS PRIOR TO BID.
2. EXIT SIGNS SHALL BE CENTER MOUNTED ABOVE ALL DOORWAYS.
3. CONTRACTOR SHALL COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL EXTERIOR LIGHT FIXTURES WITH ARCHITECTURAL ELEVATIONS.
4. ALL LIGHTING FIXTURES TO BE COORDINATED AND REVIEWED WITH OWNER PRIOR TO ORDERING.

RECEPTACLE SCHEDULE

CALLOUT	SYMBOL	VOLTS	NOTE 1	NOTE 2	NOTE 3
Duplex Outlet		120V 1P 2W	DUPLEX RECEPTACLE, MTD AT 18" AFF TO BOTTOM, UOI		
Duplex Outlet-Above Counter		120V 1P 2W	DUPLEX RECEPTACLE, MTD AT 4" ABOVE BACKSPLASH TO BOTTOM, UOI	COORDINATE WITH CASEWORK CONTRACTOR	
Duplex Outlet-GFCI Above Counter		120V 1P 2W	GFCI PROTECTED DUPLEX RECEPTACLE, MTD AT 4" ABOVE BACKSPLASH TO BOTTOM, UOI	COORDINATE WITH CASEWORK CONTRACTOR	IF OUTLET IS NOT EASILY ACCESSIBLE, PROVIDE GFCI BREAKER
Duplex Outlet-GFCI/WP		120V 1P 2W	GFCI PROTECTED DUPLEX RECEPTACLE, MTD AT 18" AFF TO BOTTOM, UOI	PROVIDE HEAVY DUTY, LOCKABLE, WHILE-IN-USE COVER	IF OUTLET IS NOT EASILY ACCESSIBLE, PROVIDE GFCI BREAKER
J-Box (120V)		120V 1P 2W	JUNCTION BOX, USE AS INDICATED		
Quad Outlet		120V 1P 2W	QUAD RECEPTACLE, MTD AT 18" AFF TO BOTTOM, UOI		
Tele & Data		120V 1P 2W	EMPTY 1" CONDUIT STUB UP TO ABOVE CEILING FOR TELEPHONE & DATA	MTD AT 18" AFF TO BOTTOM, UOI	IF LOCATED DIRECTLY ADJACENT TO A RECEPTACLE, THIS OUTLET SHALL BE MOUNTED AT THE SAME HEIGHT

DEVICE NOTE

1. ALL SWITCHES, RECEPTACLES, DEVICES, AND FACEPLATE FINISHES ARE TO BE COORDINATED WITH OWNER/ARCHITECT.

EQUIPMENT SCHEDULE

CALLOUT	SYMBOL	VOLTS	AMPS	KVA	HP	CIRCUIT
EF-1		120V 1P 2W	0.67	0.08		
EF-2		120V 1P 2W	0.67	0.08		
SCOREBOARD		120V 1P 2W	12.5	1.5		AC-32
UH-1		208V 2P 2W	13.85	2.88	2 HP	AC-12,14
UH-2		208V 2P 2W	13.85	2.88	2 HP	AC-16,18
UH-3		208V 2P 2W	13.85	2.88	2 HP	RR-8,10
UH-4		208V 2P 2W	13.85	2.88	2 HP	RR-12,14
WH-1		208V 2P 2W	39.9	8.3		AC-20,22
WH-2		208V 2P 2W	14.42	3		RR-4,6

1 Schedules
NONE

ELECTRICAL SYMBOLS

- NONFUSED DISCONNECT SWITCH - SIZE AS INDICATED
- FUSED DISCONNECT SWITCH - SIZE AS INDICATED
- COMBINATION STARTER/DISCONNECT - SIZE AS INDICATED
- $ TOGGLE SWITCH
- ———— FEEDER/BRANCH RUN OVERHEAD - CONCEALED IN OR ABOVE CEILING, IN WALL, OR EXPOSED ON STRUCTURE
- – – – – – EMERGENCY, NIGHT LIGHT, OR FEEDER/BRANCH CONCEALED BELOW FLOOR, IN WALL, OR BELOW GRADE
- P-16 HOME RUN TO CIRCUIT PANEL, NEUTRAL/HOT/GROUND. #12 COPPER, UOI

ABBREVIATIONS

a, b, c, etc.	DENOTES SWITCHING SCHEME
AC	MOUNT ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFG	BELOW FINISHED GRADE
EC	ELECTRICAL CONTRACTOR
EP	EXPLOSION PROOF
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
MC	MECHANICAL CONTRACTOR
MTD	MOUNTED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
SPD	SURGE PROTECTIVE DEVICE
STB	SHUNT TRIP BREAKER
UOI	UNLESS OTHERWISE INDICATED
WP	WEATHERPROOF

DRAWING LEGEND

DRAWING NO.	DESCRIPTION
E0.1	Schedules & Details - Electrical
E0.2	One Line Diagram - Electrical
E1.1	Site Plan - Electrical
E2.1	RR, Announcer, and Concessions Floor Plan - Lighting, Power, & Comm. - Electrical

LUMINAIRE SCHEDULE

CALLOUT	LAMP NO.	WATTS	LAMP TYPE	DESCRIPTION	MOUNTING	MANUFACTURER	MODEL	INPUT WATTS (TOTAL)	VOLTS	NOTE #1	NOTE #2
A1, A2	3/1	1620/575	LED	POLE MOUNTED SITE FIXTURE	POLE	MUSCO	SEE SPECIFICATIONS	2195	208V-3P-4W	PROVIDE 60' POLE	
B1, B2	4/1	3520/575	LED	POLE MOUNTED SITE FIXTURE	POLE	MUSCO	SEE SPECIFICATIONS	4095	208V-3P-4W	PROVIDE 70'POLE	

NOTE:

1. BASIS OF DESIGN IS MUSCO, REFER TO SPECIFICATIONS. ALL ALTERNATE SYSTEMS SHALL MEET OR EXCEED ALL PHOTOMETRIC DATA, LUMEN DEPRECIATION LEVELS, WARRANTY, AND CONTROLLABILITY.

1 Site Fixture Schedule
NONE

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	8
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	6
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	4

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
150' - Glare (Cd)	Max Candela (by Fixture)	683	13.4	3863	288.16	50.95	A	18
150' - Spill	Horizontal Illuminance	0	0	0.01	0.00		A	18
150' - Spill	Max Vert Illuminance (by Light Bank)	0.01	0	0.05	310.90		A	18
Softball (Infield)	Horizontal Illuminance	32.6	24	37	1.56	1.36	A	18
Softball (Outfield)	Horizontal Illuminance	22.8	17	31	1.80	1.34	A	18

2 Lighting Photometric Summary
NONE

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COOPERTOWN BASEBALL FIELD

Schedules & Details - Electrical

Project No.	1450
Issue Date	11-02-23
Drawn By	KES
Revision Date	
Revision Date	
Revision Date	

E0.1
SHEET NO.

ELECTRICAL ONE-LINE NOTES

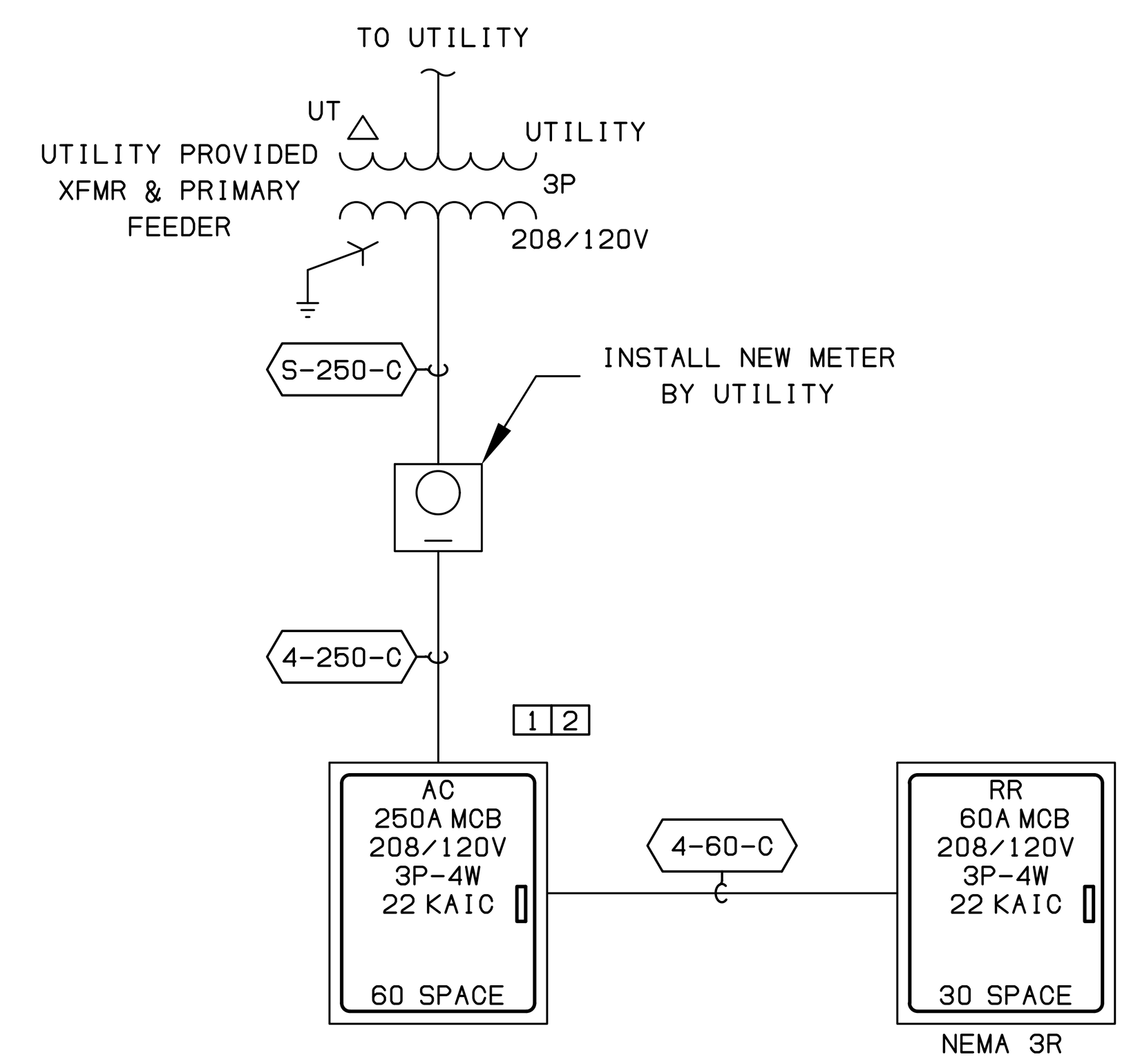
1. IN ACCORDANCE WITH NEC ARTICLE 110.16, ELECTRICAL EQUIPMENT LIKELY TO REQUIRE EXAMINATION WHILE ENERGIZED SHALL BE FIELD MARKED TO WARN PERSONNEL OF POTENTIAL ARC FLASH HAZARDS. THIS SHALL BE FURNISHED FROM THE FACTORY.
2. IN ACCORDANCE WITH NEC ARTICLE 110.24, THE SERVICE EQUIPMENT SHALL BE FIELD MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT ALONG WITH THE DATE THE CALCULATION WAS PERFORMED.
3. ALL WORKING SPACE REQUIREMENTS AROUND ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC ARTICLE 110.26 SHALL BE STRICTLY ADHERED TO BY ALL TRADES.
4. IN ACCORDANCE WITH NEC ARTICLE 230.8, RACEWAYS ENTERING A BUILDING FROM AN UNDERGROUND DISTRIBUTION SYSTEM SHALL BE SEALED IN ACCORDANCE WITH 300.5.G.
5. ALL PANELBOARDS SHALL HAVE COPPER BUSSING.
6. ALL PANELBOARDS SHALL BE RATED FOR USE IN A SEISMIC DESIGN CATEGORY "ABCD." CONTRACTOR TO VERIFY DESIGN CATEGORY WITH STRUCTURAL ENGINEER.
7. CONTRACTOR SHALL PROVIDE SPARE BREAKERS AS INDICATED ON PANEL SCHEDULES.
8. GROUNDING SHALL BE PER NEC 250.
9. ALL PANELBOARDS ARE TO EASY-TRIM TYPE.
10. WHEN INSTALLING PANELBOARD CANS, CONTRACTOR SHALL LEAVE ENOUGH ROOM TO MOUNT THE SURGE PROTECTION DEVICE AS CLOSE AS POSSIBLE TO THE PANELBOARD TO MINIMIZE THE LEAD LENGTH OF THE SPD. IN ADDITION TO THE PLACEMENT OF THE EXTERNAL SPD, CONTRACTOR SHALL ALSO REARRANGE THE BREAKERS AS REQUIRED TO MINIMIZE THE LEAD LENGTH OF THE SPD. TYPICAL FOR ALL PANELBOARDS WITH A SPD. IF BREAKERS ARE REARRANGED, CONTRACTOR SHALL ADJUST THE LABELING AND PANELBOARD DIRECTORY TO MATCH."

SERVICE ENTRANCE NOTES

1. UNDERGROUND SERVICE LATERAL CONDUCTORS MUST BE PROTECTED FROM DAMAGE IN ACCORDANCE WITH ARTICLE 300.5. UNDERGROUND SERVICE CONDUCTORS THAT ARE NOT ENCASED IN CONCRETE AND THAT ARE BURIED 18" OR MORE BELOW GRADE SHALL HAVE THEIR LOCATION IDENTIFIED BY A WARNING RIBBON PLACED 12" ABOVE THE UNDERGROUND INSTALLATION.
2. UNLESS LOCAL CODE DICTATES OTHERWISE, PVC SERVICE ENTRANCE LATERAL RACEWAY MUST BE BURIED AT LEAST 18" TO THE TOP OF THE RACEWAY UNLESS BELOW A COVERING OF AT LEAST 2" OF CONCRETE. RACEWAY COVERED UNDER 2" OF CONCRETE MUST BE BURIED AT LEAST 12" TO THE TOP OF THE RACEWAY.
3. BACKFILL THAT CONTAINS LARGE ROCKS, PAVING MATERIALS, CORROSIVE MATERIAL OR ANYTHING ELSE THAT MAY CAUSE DAMAGE TO RACEWAYS OR CABLES SHALL NOT BE PLACED IN EXCAVATION.
4. CONDUITS OR RACEWAYS THROUGH WHICH MOISTURE MAY CONTACT LIVE PARTS SHALL BE SEALED OR PLUGGED AT ONE OR BOTH ENDS. SPARE OR UNUSED RACEWAYS SHALL ALSO BE SEALED. SEALANTS SHALL BE IDENTIFIED FOR USE WITH THE CABLE, INSULATION, SHIELD OR OTHER COMPONENTS.
5. PARALLEL SERVICE CONDUCTORS MUST BE THE SAME LENGTH, HAVE THE SAME CONDUCTOR MATERIAL, BE THE SAME SIZE, HAVE THE SAME INSULATION TYPE, AND BE TERMINATED IN THE SAME MANNER. IN ADDITION, THE RACEWAYS OR CABLES MUST HAVE THE SAME PHYSICAL CHARACTERISTICS.

ONE LINE SYMBOL LEGEND

Symbol	Description	Symbol	Description
600A	MOLDED CASE CIRCUIT BREAKER. NUMBER INDICATED TRIP RATING	X-XXX-C	FEEDER CALLOUT, REFER TO FEEDER SCHEDULE
PANEL 100 A MLO 480/277V 3P-4W	LIGHTING OR DISTRIBUTION PANELBOARD	XX, XXX KV	AVAILABLE SYMMETRICAL SHORT CIRCUIT CURRENT AT THE EQUIPMENT AS CALCULATED BY THE ENGINEER.
	CURRENT TRANSFORMER		GROUNDING CONNECTION OF SEPARATELY DERIVED SYSTEM
	POTENTIAL TRANSFORMER	45 KVA 480V 3P 208/120V #6G-CU	DELTA/WYE DRY TYPE TRANSFORMER. TRANSFORMER SHALL BE CONSIDERED A SEPARATELY DERIVED SYSTEM AND SHALL BE GROUNDED PER NEC 250-30.
DPM	DIGITAL METERING PACKAGE (AMPS, VOLTS, KWD, KWH, PF)		
GF	GROUND FAULT RELAY		
SPD	SURGE PROTECTIVE DEVICE		



1 One Line Diagram
NONE

FEEDER SCHEDULE (NOTE: ALL CONDUCTORS THHN / THWN U.O.N.)

TAG #	NOMINAL AMPACITY	MINIMUM CONDUIT SIZE (IN)	NO. OF PARALLEL RUNS	MINIMUM CABLE SIZE (AWG)	MATERIAL (INCLUDES ALL CONDUCTORS)	NO. OF CONDUCTORS	EQUIP. GROUND. COND. (AWG)
3-PHASE, 4-WIRE SYSTEMS							
S-250-C	250A	2-1/2"	1	#4/0	CU	4	-
4-250-C	250A	2-1/2"	1	#4/0	CU	4	#4
4-60-C	60A	1"	1	#6	CU	4	#10

2 Feeder Schedule
NONE

KEYED NOTES

1. ROUTE ALL FIELD LIGHTING CIRCUITS THROUGHMUSCO CONTROL SYSTEM PANEL.
2. CONTRACTOR SHALL PROVIDE SINGLE SECTION, 60 BREAKER PANEL.

Panel AC
ROOM
MOUNTING SURFACE
FED FROM UTILITY
NOTE
VOLTS 208Y/120V 3P 4W
BUS AMPS 250
NEUTRAL 100%
AIC 22,000
MAIN BKR 250
LUGS STANDARD

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	0.19	LIGHTING	a	2	20/1	0.72	RECEPTACLE
3	20/1	0.19	LIGHTING	b	4	20/1	0.18	RECEPTACLE
5	20/1	0.08	LIGHTING	c	6	20/1	0.18	RECEPTACLE
7	20/1	0.39	LIGHTING	a	8	20/1	0.36	RECEPTACLE
9	20/1	0.21	LIGHTING	b	10	20/1	0.36	RECEPTACLE
11	30/3	4.10	LIGHTING	c	12	20/2	2.88	UNIT HEATER 1
13	|			a	14	|		
15	|			b	16	20/2	2.88	UNIT HEATER 2
17	30/3	2.20	LIGHTING	c	18	|		
19	|			a	20	50/2	8.30	WH-1
21	|			b	22	|		
23	30/3	2.20	LIGHTING	c	24	20/1	0.18	RECEPTACLE
25	|			a	26	20/1	0.18	RECEPTACLE
27	|			b	28	20/1	0.18	RECEPTACLE
29	30/3	4.10	LIGHTING	c	30	20/1	0.18	RECEPTACLE
31	|			a	32	20/1	1.50	SCOREBOARD
33	|			b	34	20/1	0.18	RECEPTACLE
35	20/1	0.36	RECEPTACLE	c	36	20/1	0.18	RECEPTACLE
37	20/1	0.36	RECEPTACLE	a	38	60/3	12.24	PANEL RR
39	20/1	0.18	RECEPTACLE	b	40	|		
41	20/1	0.18	RECEPTACLE	c	42	|		
43	20/1	0.18	RECEPTACLE	a	44	20/1	0.00	SPARE
45	20/1	0.18	RECEPTACLE	b	46	20/1	0.00	SPARE
47	20/1	0.18	RECEPTACLE	c	48	20/1	0.00	SPARE
49	20/1	0.00	SPARE	a	50	20/1	0.00	SPARE
51	20/1	0.00	SPARE	b	52	20/1	0.00	SPARE
53	20/1	0.00	SPARE	c	54	20/1	0.00	SPARE
55	20/1	0.00	SPARE	a	56	20/1	0.00	SPARE
57	20/1	0.00	SPARE	b	58	20/1	0.00	SPARE
59	20/1	0.00	SPARE	c	60	20/1	0.00	SPARE

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	1.06	1.33	(125%)	LARGEST MOTOR	8.30	2.08	(25%)
				MOTORS	36.90	36.90	(100%)
				RECEPTACLES	7.98	7.98	(50%>10)
				TOTAL LOAD		48.28	
				BALANCED 3-PHASE LOAD		134.02 A	
				PHASE A		115%	
				PHASE B		103%	
				PHASE C		81.8%	

Panel RR
ROOM
MOUNTING SURFACE
FED FROM AC
NOTE
VOLTS 208Y/120V 3P 4W
BUS AMPS 60
NEUTRAL 100%
AIC 22,000
MAIN BKR 60
LUGS STANDARD

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	0.18	HEATED ENCLOSURE	a	2	20/1	0.36	RECEPTACLE
3	20/1	0.50	TRACE	b	4	20/2	3.00	WH-2
5	20/1	0.18	RECEPTACLE	c	6	|		
7	20/1	0.18	RECEPTACLE	a	8	20/2	2.88	UNIT HEATER 3
9	20/1	0.18	RECEPTACLE	b	10	|		
11	20/1	0.18	RECEPTACLE	c	12	20/2	2.88	UNIT HEATER 4
13	20/1	0.18	RECEPTACLE	a	14	|		
15	20/1	0.18	RECEPTACLE	b	16	20/1	0.50	HAND DRYER
17	20/1	0.18	RECEPTACLE	c	18	20/1	0.50	HAND DRYER
19	20/1	0.18	RECEPTACLE	a	20	20/1	0.00	SPARE
21	20/1	0.00	SPARE	b	22	20/1	0.00	SPARE
23	20/1	0.00	SPARE	c	24	20/1	0.00	SPARE
25	20/1	0.00	SPARE	a	26	20/1	0.00	SPARE
27	20/1	0.00	SPARE	b	28	20/1	0.00	SPARE
29	20/1	0.00	SPARE	c	30	20/1	0.00	SPARE

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LARGEST MOTOR	3.00	0.75	(25%)	MOTORS	8.76	8.76	(100%)
				RECEPTACLES	3.48	3.48	(50%>10)
				TOTAL LOAD		12.99	
				BALANCED 3-PHASE LOAD		36.06 A	
				PHASE A		97.1%	
				PHASE B		105%	
				PHASE C		97.5%	

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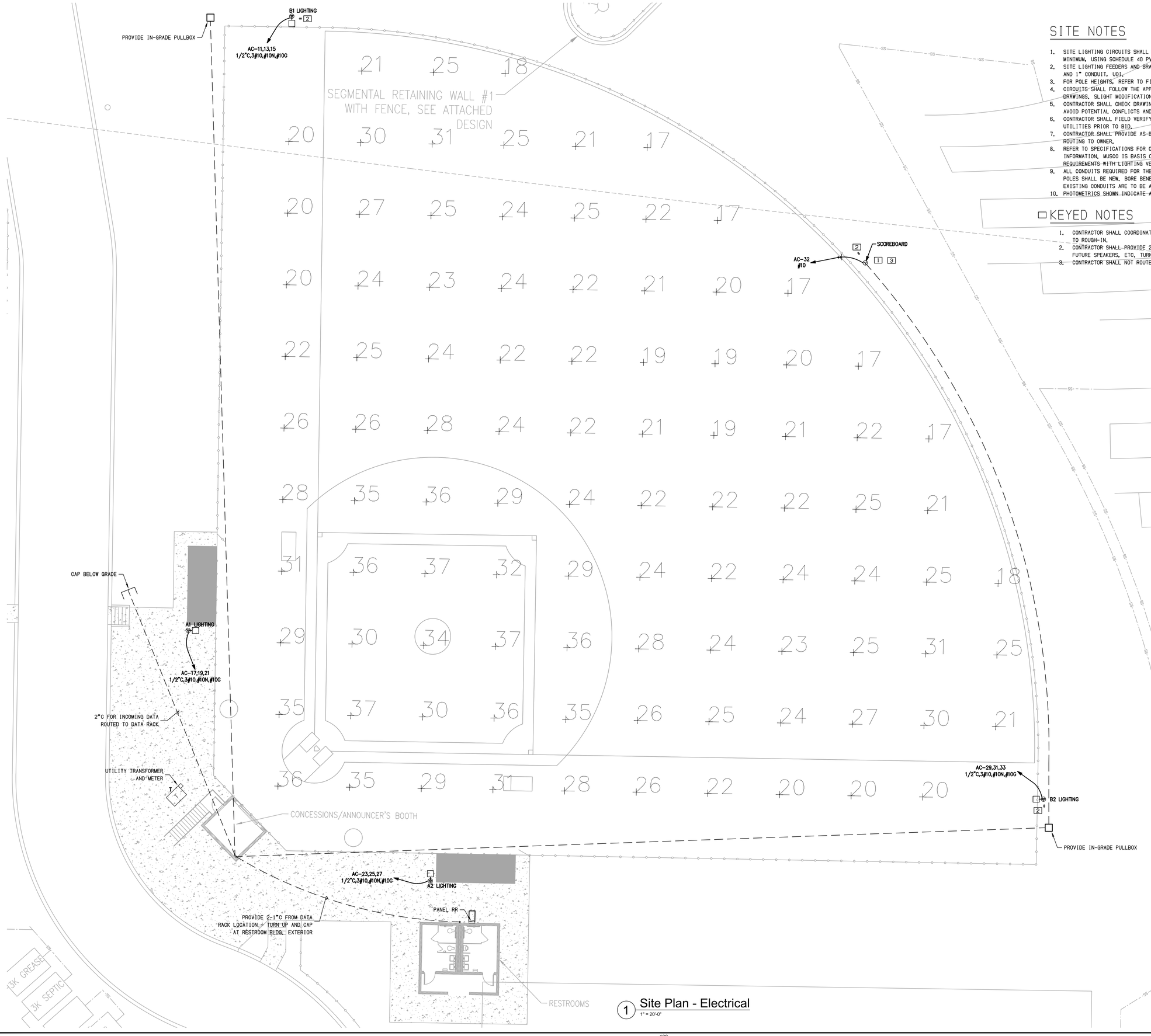
COOPERTOWN BASEBALL FIELD

One Line Diagram & Details - Electrical

Project No. 1450
Issue Date 11-03-23
Drawn By KES
Revision Date
Revision Date
Revision Date

HNA ENGINEERING

SHEET NO. E0.2



SITE NOTES

1. SITE LIGHTING CIRCUITS SHALL BE INSTALLED AT A DEPTH OF 36" MINIMUM, USING SCHEDULE 40 PVC.
2. SITE LIGHTING FEEDERS AND BRANCH SHALL HAVE A MINIMUM OF #8 WIRING AND 1" CONDUIT, UOJ.
3. FOR POLE HEIGHTS, REFER TO FIXTURE SCHEDULE.
4. CIRCUITS SHALL FOLLOW THE APPROXIMATE ROUTE SHOWN ON THESE DRAWINGS, SLIGHT MODIFICATIONS ARE ACCEPTABLE.
5. CONTRACTOR SHALL CHECK DRAWINGS FROM OTHER TRADES TO DETERMINE AND AVOID POTENTIAL CONFLICTS AND DIG-INS.
6. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO BID.
7. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS OF ALL UNDERGROUND ROUTING TO OWNER.
8. REFER TO SPECIFICATIONS FOR CONTROL PANEL AND A1, A2, B1, B2 DETAIL INFORMATION, MUSCO IS BASIS OF DESIGN. COORDINATE EXACT REQUIREMENTS WITH LIGHTING VENDOR.
9. ALL CONDUITS REQUIRED FOR THE INSTALLATION OF THE NEW LIGHTING POLES SHALL BE NEW. BORE BENEATH FIELD SURFACE WHERE REQUIRED. ALL EXISTING CONDUITS ARE TO BE ABANDONED IN PLACE.
10. PHOTOMETRICS SHOWN INDICATE ALL LIGHTING AT 100% OUTPUT.

KEYED NOTES

1. CONTRACTOR SHALL COORDINATE EXACT SCOREBOARD REQUIREMENTS PRIOR TO ROUGH-IN.
2. CONTRACTOR SHALL PROVIDE 2-1"C FROM EACH LOCATION INDICATED FOR FUTURE SPEAKERS, ETC. TURN CONDUIT UP AT BASE AND CAP.
3. CONTRACTOR SHALL NOT ROUTE CONDUIT BELOW FIELD.

1 Site Plan - Electrical
1" = 20'-0"

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COOPERTOWN BASEBALL FIELD

Site Plan - Electrical

Project No.	1450
Issue Date	11-03-23
Drawn By	KES
Revision Date	
Revision Date	
Revision Date	

E1.1
SHEET NO.

HNA ENGINEERING

LIGHTING NOTES

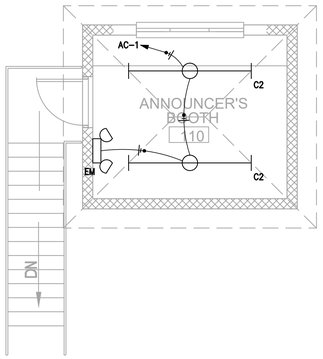
1. DO NOT ALTER THE NUMBER OF FIXTURES INDICATED ON DRAWINGS. SEE FIXTURE SCHEDULE FOR APPLICABLE NOTES.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL EXTERIOR FIXTURES WITH ARCH. ELEVATIONS.
3. ALL EXIT SIGNS SHALL REMAIN UNSWITCHED. VOI.
4. CONTRACTOR SHALL PROVIDE ALL CABLING FOR 0-10V DIMMING.

POWER NOTES

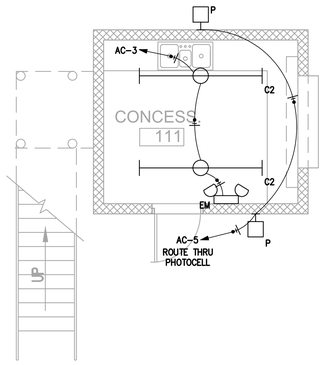
1. CONTRACTOR SHALL PROVIDE ALL CONNECTIONS AS REQUIRED FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. COORDINATE EXACT REQUIREMENTS PRIOR TO ROUGH-IN.

☐ KEYED NOTES

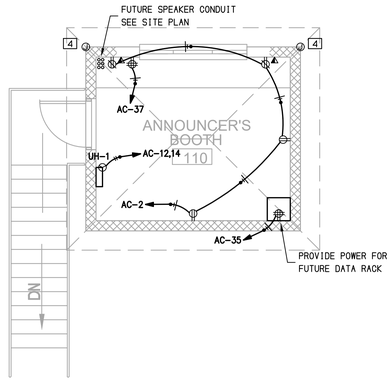
1. CONTRACTOR SHALL INTERLOCK EXHAUST FANS WITH LIGHTING CIRCUIT/SWITCH.
2. CONTRACTOR SHALL COORDINATE HEATED ENCLOSURE REQUIREMENTS PRIOR TO ROUGH-IN. SEE PLUMBING FOR MORE INFORMATION.
3. COORDINATE PIPING HEAT TRACE LOCATION WITH PLUMBING PLANS.
4. PROVIDE BOX IN EXTERIOR WALL AND 0.75"C TO BELOW MILLWORK FOR FUTURE SPEAKER.



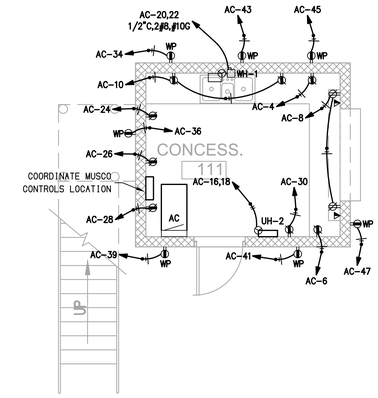
1 Announcer's 2nd Floor Plan - Lighting - Elec.
1/4" = 1'-0"



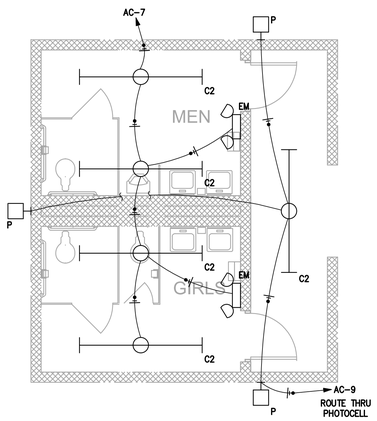
2 Concessions 1st Floor Plan - Lighting - Elec.
1/4" = 1'-0"



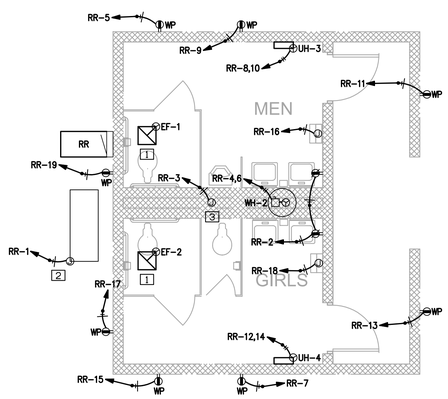
4 Announcer's 2nd Floor Plan - Power & Comm. - Elec.
1/4" = 1'-0"



5 Concessions 1st Floor Plan - Power & Comm. - Elec.
1/4" = 1'-0"



3 Restroom Floor Plan - Lighting - Elec.
1/4" = 1'-0"



6 Restroom Floor Plan - Power & Comm. - Elec.
1/4" = 1'-0"

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COOPERTOWN BASEBALL FIELD

Floor Plan - Lighting, Power, & Comm. - Electrical

Project No.	1450
Issue Date	11-03-23
Drawn By	KES
Revision Date	
Revision Date	
Revision Date	

E2.1
SHEET NO.

HNA ENGINEERING

Non-Boycott of Israel Certification

The Contractor certifies that it is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars ($250,000) or to contractors with less than ten (10) employees.

Signature: _____

Printed Name:_____

Title:_____

Date:_____